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ABSTRACT

This publication includes two papers by John Hollifield, three ERIC Digests and two ERIC resource lists on group learning, and a reprint of an ERIC search on cooperative learning in elementary and middle schools. The two papers are titled: (1) "Cooperative Learning in Elementary Schools: From Supplemental Instructional Practice to Schoolwide Restructuring"; and (2) "Trends in Elementary and Early Childhood Education." The first paper briefly describes a number of cooperative learning processes and examines the increasing pattern of use of cooperative learning processes in elementary schools over the last decade, as exemplified by the Johns Hopkins University Student Team Learning Processes. The processes are described, the research concerning them is summarized, and the existing knowledge about the use of the processes in elementary schools is discussed. Preceeded by a discussion of the school reform movement and demographic factors delineating the population of children, the trends identified and briefly discussed in the second paper are those currently influencing kindergarten, preschool education, child care, and elementary education. Digests and resource lists on ability grouping, cooperative learning strategies in children, mixed-age grouping and cooperative learning, and classroom and group interaction, and an ERIC search reprint containing 39 citations and abstracts, are included. (RH)

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Children Learning in Groups

And Other Trends in Elementary and Early Childhood Education

John Hollifield

and others

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Part I. Two Papers by John Hollifield

Cooperative Learning in Elementary Schools: From Supplemental Instructional Practice to Schoolwide Restructuring

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Center for Research on Elementary and Middle Schools
The Johns Hopkins University

Abstract

Cooperative learning, in various shapes and guises, is becoming more and more visible as an instructional process in elementary schools. This paper briefly describes a number of cooperative learning processes, then examines the increasing pattern of use of cooperative learning processes in elementary schools, essentially over the last decade, by presenting the progressive use of the Johns Hopkins University Student Team Learning processes as an example. The processes are described, the research concerning them is summarized, and the existing knowledge about the use of these processes in elementary schools is discussed. Use in elementary schools seems to be progressing from initial supplemental to more curriculum-embedded use, and the ultimate progression could lead to the creation of elementary schools in which cooperation is not only the dominant mode of instruction, but the dominant mode of interaction throughout the school.

Cooperative learning is a classroom instructional process in which students work together in 4- to 5-member heterogeneous teams to accomplish an academic task. Proceeding from this generic definition, various cooperative learning methods have been developed for use in schools from kindergarten through 12th grade, in almost every subject area.

Acknowledgement

Any paper that examines the research and development of the cooperative learning processes at The Johns Hopkins University must lean extensively on the work of Robert E. Slavin. This paper is no exception.

Cooperative learning has a strong research base. A large variety of experimental studies find positive effects on student achievement, interpersonal relations, and numerous affective outcomes (Slavin, 1983). At the same time, cooperative learning has a strong advocacy base, recommended by numerous prominent educators as a process that schools should be using to provide more effective education for students (e.g., Goodlad, 1984; Brandt, 1988).

This paper first describes a variety of cooperative learning methods developed by various researchers, all working simultaneously in widespread locations to apply cooperative learning theories in producing practical programs for schools. It then asks the question: Given strong research and strong advocacy and development of practical programs for school use, is cooperative learning being successfully implemented in the nation's elementary schools in ways that will fulfill its promise and potential? The paper addresses this question by presenting one set of cooperative learning processes—The Johns Hopkins University Student Team Learning processes—as an example of how these processes have moved from researcher-teacher development into elementary classroom implementation and into elementary school restructuring.

Cooperative Learning Processes

Cooperative learning has come a long way from the example that most people remember from their own experience—a team of students working together in science lab. That team, composed of four members, inevitably had one student who paid no attention, two who experimented with making explosives, and another who did all the work the team was supposed to be doing.

Now, specific cooperative learning methods have been developed that make learning a true team effort in which all members benefit and all are accountable for their performance. These methods include Group Investigation, Co-op Co-op, Finding Out/Descubrimiento, Learning Together, Groups of Four, Student Team Learning, and multiple other researcher- and teacher-developed variations.

Group Investigation

In Group Investigation (Sharan & Sharan, 1987), the teacher designates a broad topic that the students break down into subtopics to investigate. These subtopics are derived from students' backgrounds and interests as they exchange ideas.

The students investigate their subtopic by seeking information from sources inside and outside the classroom—from books, people, and institutions that offer a range of ideas, opinions, data, solutions, or positions regarding the problem being studied. The students then evaluate and synthesize the information contributed by each group member in order to produce a group product.

The essential elements of the Group Investigation process include cooperative planning, the teacher serving as a resource person and facilitator, and a series of six consecutive states of implementation: identifying the topic and organizing pupils into groups, planning the learning task, carrying out the investigation, preparing a final report, presenting the final report, and evaluating the process.

Co-op Co-op

In Co-op Co-op (Kagan, 1985), teams cooperate with one another to study one overall class topic. Each team in the class works on one aspect of the overall topic—a mini-topic—and then shares its information and understandings with the whole class. The nine specific elements of the process are student-centered class discussion, selection of student learning teams and team-building, team topic selection, mini-topic selection, mini-topic preparation, mini-topic presentations, preparation of team presentations, team presentations, and evaluation.

Finding Out/Descubrimiento

Finding Out/Descubrimiento is a discovery-oriented elementary school science program (DeAvila & Duncan, 1980; Cohen, 1986). This method, used particularly in bilingual classes, involves students in hands-on science activities in small groups directed toward discovery of important scientific principles. Students may work together on experiments to derive principles of magnetism, sound, light, and so on. Materials for Finding Out/Descubrimiento are available in English and Spanish, so that monolingual and bilingual students can work together cooperatively. In addition to learning science, students in Finding Out/Descubrimiento apply mathematics skills in real-life situations and engage in focused discussions that help develop English skills for limited English-speaking children. For information on Finding Out/Descubrimiento, see DeAvila & Duncan, 1980; Cohen, 1986.

Learning Together

Among the most widely used cooperative learning methods are those developed and researched by David and Roger Johnson and their colleagues at the University of Minnesota. Their methods emphasize four factors (Johnson, Johnson, Holubec, & Roy, 1984): face-to-face interaction, positive interdependence, individual accountability, and interpersonal and small group skills.

The basic structure of the Learning Together model involves team members working on a single assignment, handing in a group product, and receiving praise and evaluation as a team on the basis of how well they work together and how well they accomplish the group task. The Johnsons and their colleagues have also developed and researched methods for engaging students in "cooperative controversy." Students in 4-member groups are given materials to study concerning a controversial issue, and two group members take one side of the issue and two take the other. Then they switch roles and argue the opposite side. Finally, the entire group comes to a consensus.

Groups of Four

Groups of Four is a cooperative mathematics program that emphasizes problem solving, applications, and discovery (Burns, 1981). Groups of students work together to solve complex math problems and to discover mathematical principles and operations.

Student Team Learning

Student Team Learning is a generic title for five specific cooperative learning processes developed at The Johns Hopkins University: Teams-Games-Tournament (TGT), Student Teams Achievement Divisions (STAD), Jigsaw II, Team Assisted Acceleration in Mathematics (TAI), and Cooperative Integrated Reading and Composition (CIRC). The remainder of this paper examines the development of these processes and their progressive use by schools and districts nationwide as an example of how cooperative learning in general is becoming established as an instructional method in schools.

The first research study of Student Team Learning conducted by Johns Hopkins University researchers took place in 1971—eighteen years ago. That 1971 study (DeVries, Muse, & Wells, 1971) began the development of the Johns Hopkins cooperative learning processes. The study, ironically, was conducted in a high school classroom of 11th-grade students, but the use of the Hopkins cooperative learning methods has progressed much more in elementary schools than in secondary schools.

The first three cooperative learning processes developed by the Hopkins researchers (TGT, STAD, and Jigsaw II) are generic; they are *processes* that can be applied to multiple subjects at multiple grade levels.

Teams-Games-Tournament (TGT)

TGT was the first Hopkins process to be developed. In TGT, students are assigned to 4-member learning teams that are mixed in performance level, sex, and ethnicity. The teacher

presents a lesson, then students work within their teams to make sure that all team members have mastered the lesson. Team members then compete individually against two members of similar past performance from other teams in a tournament in which questions are based on the subject matter studied in the teams. The winner at each tournament table brings 60 points back to his or her team; the other players receive 40 or 20 points for being second or third.

This structure means that low achievers, who compete against low achievers, have as much opportunity to win the maximum points for their team as do high achievers. This element—equal opportunity for success—is consistent among all the Hopkins processes.

High-performing teams, those whose members earn enough points to reach predetermined standards, receive super team, great team, or good team certificates and other rewards determined by the teacher.

Student Teams Achievement Divisions (STAD)

STAD uses the same teacher presentations and teamwork as TGT, but replaces the tournament competition with a quiz that team members take individually. On the basis of their score on the quiz, they contribute to their team, and teams that meet predetermined standards receive recognition. The contribution of points by each team member is based on how much he or she improves over past performance. Thus a low achiever who scores low, but higher than previously, can contribute as much to the team as a high achiever. The use of this scoring system in STAD provides equal opportunities for success for all students.

Jigsaw II

The third generic cooperative learning process, Jigsaw II, is best suited for use in learning narrative material, such as in social studies, science, or literature. In Jigsaw II, students read narrative material in their teams, but each student is assigned to become an expert on one facet of the material. After team reading, each team member meets with members of other teams who have the same expert assignment, and in this grouping the students prepare brief presentations of the important aspects of their expert topic. Then they return to their teams, and each team member presents his or her expert information to the rest of the team. A quiz on the entire body of information is then given, which students take individually. Points are earned for the team, using the same scoring system as in STAD, and high-performing teams receive super team, great team, and good team recognition.

Research on TGT and STAD

The third edition of the *Using Student Team Learning* teacher's manual (Slavin, 1986) lists 13 research studies of TGT and 20 studies of STAD, all of which were conducted in classrooms as true experiments using control groups. In brief, the studies found that these cooperative learning processes consistently improved student achievement over traditional instruction in language arts, math, English, spelling, social studies, science, learning of analogies, and learning English as a second language. Moreover, consistent positive effects were found for student self-esteem, cross-ethnic acceptance and friendship, acceptance of mainstreamed students, liking of school, time on task, and other outcomes. As Slavin (1986) notes:

> There are many educational methods that have been found to improve student achievement, a few that improve intergroup relations, mainstreaming, or student

> self-esteem, but how many educational methods can claim to have documented positive effects on such a variety of student outcomes in well-controlled field experiments in schools? (p. 14).

TGT, STAD, and Jigsaw II in the Elementary School

In a 1983 survey of teachers concerning use of the Hopkins cooperative learning processes, more than half of the respondents who reported using the processes (N=439) were elementary school teachers (Hollifield,, 1983). The greatest use of the processes by all teachers was in math (32.1%) and language arts (30.5%), the basic school curriculum areas. Significant use also occurred in social studies and science, and some use was reported in reading, spelling, foreign language, and other subjects.

This survey study also found that 60.3% of the teachers using the cooperative learning processes were "isolated" users--they reported no other teacher in the school using the processes. Only 3.7% of the teachers reported that they were part of widespread school usage, and another 6.3% reported that from one to four other teachers in the school were using the processes.

These findings clearly illustrate the supplemental use of TGT, STAD, and Jigsaw II in elementary schools, a type of use that the processes themselves generate. The generic nature of these processes and their relative ease of use has contributed to teachers using them in many subject areas, grade levels, and schools, and the widespread dissemination of these processes has been noted as one of the few success stories in dissemination of federally funded educational research projects (Hollifield & Slavin, 1983). At the same time, the processes and the materials are supplemental to the main curricula. Most teachers

have heard of cooperative learning methods, a large number have received training and staff development in their use, and a large number have used and are using them, but such does not constitute a major integration into the curriculum.

Given time enough and money, as the saying goes, these cooperative learning processes might eventually become entrenched instructional processes in a majority of American schools, but that would require each school and its teachers to determine how to integrate the use of the processes each day in the major areas of the curriculum. This integration is not likely. More individual teachers are likely to increasingly use the individual processes and see the resulting beneficial effects. But this use and these benefits fall very short of the ideal—that the benefits of cooperative learning should be thoroughly embedded in the entire process of American education.

The elementary school, however, is approaching this ideal state through other channels of cooperative learning, the use of Team Accelerated Instruction in Mathematics and the use of Cooperative Integrated Reading and Composition. These two processes are curriculum specific (math, reading, and writing) and are specific to the elementary school level. Both represent a natural extension of the development of cooperative learning processes based on recognition of the limits of TGT, STAD, and Jigsaw II and are based on the need to fully address the problem of student heterogeneity in American classrooms.

Team Accelerated Instruction (TAI)

TAI is a program that combines cooperative learning with individualized instruction. The development of TAI was very much prompted by the complaints of math teachers in

cooperative learning training workshops that, although cooperative learning helped their low achievers, it was still a whole class method of instruction that could not completely meet the diversity of students needs. What was needed was a program that would give all students materials appropriate to their skill level in mathematics and allow them to proceed through these materials at their own rates.

This description, of course, is a description of individualized instruction. But individualized instruction in math has been previously offered in the form of programmed instruction. In the 1960s, programmed instruction and related methods were expected to revolutionize instruction, especially in mathematics. However, reviews of the research on programmed instruction methods in mathematics have consistently concluded that these methods are no more effective than traditional instruction (e.g., Miller, 1976; Horak, 1981). Several problems inherent in programmed instruction have been cited as contributing to these disappointing findings (see Kepler & Randall, 1977; Schoen, 1976). Among these are too much time spent on management rather than teaching, too little incentive for students to progress rapidly through the programmed materials, and an excessive reliance on written instruction rather than instruction from a teacher.

If individualized instruction would not work, but the nature of mathematics instruction demanded its use, the question became one of how to make it work. The Hopkins researchers felt (Slavin, in press) that by combining programmed instruction with cooperative learning and turning most of the management functions (e.g., scoring answers, locating and filing materials, keeping records, assigning new work) over to the students themselves, many of the problems with programmed instruction could be solved. If students could handle most of the checking and management, the teacher would be free to teach

individuals and small, homogeneous teaching groups. Students working in learning teams toward a cooperative goal could help one another study, provide instant feedback to one another, and encourage one another to proceed rapidly and accurately through the materials.

Components of TAI

TAI is primarily designed for grades 3 through 6, but has also been used at higher grade levels. It is almost always used without aides, volunteers, or other assistance. The principal elements of TAI are as follows (adapted from Slavin, Leavey, & Madden, 1986):

Teams. Students are assigned to 4- to 5-member teams. Each team consists of a mix of high, average, and low achievers, boys and girls, and students of any ethnic groups in the class. Every eight weeks, students are reassigned to new teams.

Placement Test. Students are pretested at the beginning of the program on mathematics operations. They are placed at the appropriate point in the individualized program based on their performance on the placement test.

Curriculum Materials. Following instruction from the teacher (see "Teaching Groups," below), students work in their teams on self-instructional curriculum materials covering addition, subtraction, multiplication, division, numeration, decimals, fractions, word problems, statistics, and algebra. Word problems are emphasized throughout the materials.

Units are in the form of books, and each unit has the following subparts:

* A guide page that reviews the teacher's lesson, explaining the skill to be mastered and giving a step-by-step method of solving problems

* Several skill practice pages, each consisting of 16 problems, with each skill practice page introducing a subskill that leads to a final mastery of the entire skill

* Two parallel sets of 10 items, Formative Tests A and B

* A unit test of 15 items

* Answer sheets for the skill practice pages and formative tests (located at the back of the student books) and answers for unit tests (located in a separate "monitor book")

Teaching Groups. Every day, the teacher teaches lessons to small groups of students, drawn from the heterogeneous teams, who are at the same point in the curriculum. For example, six students on different teams might be ready for instruction on the use of decimals. Teachers use specific concept lessons provided as part of the program. The purpose of these sessions is to introduce major concepts to the students. Teachers make extensive use of manipulatives, diagrams, and demonstrations. The lessons are designed to help students understand the connection between the mathematics they are doing and familiar, real-life problems. While the teacher works with a teaching group, the other students continue to work in their teams on their self-instructional units. This direct instruction to teaching

groups is made possible because students take responsibility for almost all checking, materials handling, and routing.

Team Study Method. Following the placement test, the students are given a starting place in the sequence of mathematics units. They work on their units in their teams using the following steps:

1. Students locate their units within their books and read the guide page, asking teammates or the teacher for help if necessary. Then the students begin with the first skill practice page in their unit.

2. Each student works the first four problems on his or her own skill practice page and then has a teammate check the answers against an answer sheet printed upside-down at the back of each student book. If all four are correct, the student may go on to the next skill practice page. If any are incorrect, the student must try the next four problems, and so on, until he or she gets one block of four problems correct. If they run into difficulties at this stage, the students are encouraged to ask for help within their teams before asking the teacher for help.

3. When a student gets four in a row correct on the last skill practice page, he or she takes Formative Test A, a 10-item quiz that resembles the last skill practice page. Students work alone on the test until they are finished. A teammate scores the formative test. If the student gets 8 or more of the 10 problems correct, the teammate signs the student's paper to indicate that the student is certified by the team to take the unit test. If the student does not get 8 correct (this is rare), the teacher is called in to respond to any problem the

student is having. The teacher would diagnose the student's problem, briefly reteach the skill, and then may ask the student to work again on certain skill practice items. The student then takes Formative Test B, a second 10-item test comparable in content and difficulty to Formative Test A.

4. When a student passes Formative Test A or B, he or she takes the test paper to a student monitor from a different team to get the appropriate unit test. The student then completes the unit test, and the monitor scores it. Two different students serve as monitors each day. If the student gets at least 12 items correct (out of 15), the monitor posts the score on the student's Team Summary sheet. Otherwise, the test is given to the teacher, who meets with the student to diagnose and remediate the student's problems. Again, because students have already shown mastery on the skill practice pages and formative tests, it is very rare that they fail a unit test.

Team Scores and Team Recognition. At the end of each week, the teacher computes a team score. This score is based on the average number of units covered by each team member and the accuracy of the unit tests. Criteria are established for team performance. A high criterion is set for a team to be a super team, a moderate criterion for a team to be a great team, and a minimum criterion for a team to be a good team. The teams meeting the super team and great team criteria receive attractive certificates.

Facts Tests. Twice each week, the students are given 3-minute facts tests (usually multiplication or division facts). The students are given fact sheets to study at home to prepare for these tests.

Whole Class Units. After every three weeks, the teacher stops the individualized program and spends a week teaching lessons to the entire class covering such skills as geometry, measurement, sets, and problem-solving strategies.

Research on TAI

Seven field experiments have been conducted to evaluate the effects of TAI on student achievement, attitudes, and behavior (see Slavin, 1985a, 1985b). All of the TAI studies used either random assignment of classes or matched experimental and control classes. Analyses of covariance or equivalent multiple regression procedures were used to control for any initial differences among students and to increase statistical power.

Teacher training for each experiment involved a 3-hour workshop, followed by classroom visits to ensure faithful implementation. The settings for the studies ranged from inner-city Baltimore and Wilmington, Delaware, to suburban and rural Maryland, and grade levels from 3 to 6. Implementation periods varied from 8 to 24 weeks (median = 16 weeks).

The following discussion of the TAI research findings is adapted from Slavin (in press):

Academic Achievement

Academic achievement outcomes are assessed in six of the seven studies. In five of these six studies, TAI students significantly exceeded control students on the computations subtest of the Comprehensive Test of Basic Skills. Similar effects were found for concepts and

applications in only one of the four studies in which this variable was assessed, but in all four studies means for concepts and applications favored the TAI group.

In the five studies in which the treatment effects for computations were statistically significant, they were also quite large. Even in the two relatively brief experiments, the TAI classes gained twice as many grade equivalents as did control students.

Attitudes

Two general attitude scales were used in four of the experiments: liking of math class and self-concept in math. Statistically significant effects favoring TAI were found for liking of math class in three of the experiments and for self-concept in math in two of the experiments. In the experiments where these effects were not significant, they were as good as the effects of the control treatments.

Behaviors

In two of the experiments, teachers rated a subset of their students (all academically handicapped students plus six randomly selected nonhandicapped students) on four scales: classroom behavior, self-confidence behavior, friendship behavior, and negative peer behavior (e.g., fighting). Statistically significant effects favoring TAI students were found on all four scales in one of the experiments; the other experiment replicated these findings for self-confidence and friendship behaviors, but not for the other two scales (though the means were in the same direction).

Race Relations

Two experiments were designated to specifically look for effects on race relations. In one of these, positive effects of TAI were found on cross-racial nominations on two sociometric scales, "Who are your friends in this class?" and "Who would you rather *not* sit at a table with?" No effects were found on cross-racial ratings of classmates as "nice" or "smart," but TAI students made significantly fewer cross-racial ratings of "not nice" and marginally fewer of "not smart." In the other experiment no effects were found on cross-racial "friendship" nominations, but TAI students named significantly more students of another race as playmates at recess than did control students. Positive effects were also found on cross-racial ratings of "smart" and on reductions in ratings of "not nice." Interestingly, the effect on "smart" ratings was due primarily to increases in whites' ratings of black classmates.

Effects on Academically Handicapped Students

One principle impetus for the development of TAI was to develop a means of meeting the instructional needs of academically handicapped students in the context of the regular class, while providing these students with the cooperative experiences found in earlier research to improve their acceptance by their nonhandicapped classmates (see Madden & Slavin, 1983a, 1983b). Effects of TAI on academically handicapped students have been positive in several dimensions. No achievement differences for the academically handicapped subsample were found in one experiment, which involved an 8-week intervention, but significant and strong achievement effects were found in a longer (24-week) experiment, where academically handicapped students gained 52% of a grade equivalent more in

computations than did their control counterparts. In the first experiment, academically handicapped students in TAI gained more than control students in sociometric choices of "best friends" or "ok." They were also rated much more positively than control students on all four behavior rating scales.

TAI in the Elementary School

Since 1984, the Hopkins Center for Research on Elementary and Middle Schools has been funded through the National Diffusion Network to disseminate TAI. The program is also commercially published by Charlesbridge (formerly Mastery Education Corporation), which maintains representatives in each state. There were NDN-documented adoptions of the program by 200 teachers in 80 schools in 1984-85; by 221 teachers in 61 schools in 1985-86; and by 109 teachers in 36 schools in 1986-87 (Bennett & Hollifield, 1986, 1987, 1988). Almost all of these adoptions were by elementary schools; some, surprisingly, were by secondary schools looking for an answer to their remedial math problems. Based on the adoption figures plus sales and training figures provided by Charlesbridge, an estimated 400 to 500 elementary schools are using TAI.

These numbers are small compared to estimated users of the generic Hopkins processes—TGT, STAD, and Jigsaw II. But there are profound differences. In school where TAI is used, it is the mathematics curriculum, not a supplement, and is used day in, day out, all year. TAI is a complex process requiring a major commitment and is thus more likely to endure (McLaughlin, 1976).

Cooperative Integrated Reading and Composition (CIRC)

The development of CIRC was a logical extension of cooperative learning following TAI. Reading and writing remained as the core curriculum areas in which the cooperative learning processes were offering only supplemental assistance, and cooperative learning could not expect to be a major educational innovation without covering these areas.

The overall development plan focused on using cooperative learning as a vehicle through which to introduce practices found in recent research on reading and writing into routine classroom practice and to embed cooperative learning within the fabric of the elementary reading and writing program. A full description of the CIRC process can be found in Madden, Slavin, and Stevens (1986). The major elements of CIRC are as follows.

Principal Features of CIRC

The CIRC program consists of three principal elements: basal-related activities, direct instruction in reading comprehension, and integrated language arts-writing. In all of these activities, students work in heterogeneous learning teams. All activities follow a cycle that involves teacher presentation, team practice, peer preassessment, additional practice, and testing.

Reading Groups. Students are assigned to two or three reading groups (8 to 15 students per group) according to their reading level, as determined by their teachers.

Teams. Students are assigned to pairs (or triads) within their reading groups. The pairs are then assigned to teams composed of partnerships from two different reading groups. For example, a team might be composed of two students from the top reading group and two from the low group. Mainstreamed academically handicapped and remedial reading (e.g., Chapter I) students are distributed among the teams.

Many of the activities within the teams are done in pairs, while others involve the whole team; even during pair activities, however, the other pair is available for assistance and encouragement. Most of the time, the teams work independently of the teacher, while the teacher either teaches reading groups drawn from the various teams or works with individuals. One of the most important aspects the reading component of CIRC provides is meaningful, cooperative activity during follow-up times (i.e., times when the teacher is working with one of the reading groups). Students follow a weekly schedule of activities, and their partners initial "assignment record forms" as students complete each of the week's tasks.

Students' scores on all quizzes, compositions, and book reports are contributed to form a team score. Teams that meet an average criterion of 90% on all activities in a given week are designated super teams and receive attractive certificates; those that meet an average criterion of 80 to 90% are designated great teams and receive less elaborate certificates.

Basal-Related Activities. Students use their regular basal readers. Basal stories are introduced and discussed in teacher-led reading groups that meet for approximately 20 minutes each day. During these sessions, teachers set a purpose for reading, introduce new vocabulary, review old vocabulary, discuss the story after students have read it, and so on.

Presentation methods for each segment of the lesson are structured. For example, teachers are taught to use a vocabulary presentation procedure that requires a demonstration of understanding word meaning by each individual, a review of methods of word attack, repetitive oral reading of vocabulary to achieve automaticity, and use of the meanings of vocabulary words to help introduce the content of the story. Story discussions are structured to emphasize such skills as making and supporting predictions about the story and understanding major structural components of the story (e.g., problem and solution in a narrative).

After stories are introduced, students are given a series of activities to do in their teams when they are not working with the teacher in a reading group. The sequence of activities is as follows:

1. Partner reading. Students read the story silently first, and then take turns reading the story aloud with their partners, alternating readers after each paragraph. As their partner reads, the listener follows along and corrects any errors the reader makes. The partner reading gives students a great deal of oral reading practice, and enables the teacher to assess student performance by circulating and listening without having to take the time of all students in the reading group to allow individuals to read aloud.

2. Story structure and story related writing. Students are given questions related to each narrative story emphasizing the story's grammar. Halfway through the story, they are instructed to stop reading and to identify the characters, the setting, and the problem in the story, and to predict how the problem will be resolved. At the end of the story students

respond to the story as a whole and write a few paragraphs on a topic related to the story (e.g., they might be asked to write a different ending to the story).

3. Words out loud. Students are given a list of new or difficult words used in the story that they must be able to read correctly in any order without hesitating or stumbling. These words are presented by the teacher in the reading group, and then students practice their lists with their partners or other teammates until they can read them smoothly. This activity is designed to help students gain automaticity in decoding critical words, an essential prerequisite for comprehension (Samuels, 1979).

4. Word meaning. Students are given a list of story words that are new to their speaking vocabularies and asked to look them up in a dictionary, paraphrase the definition, and write a sentence for each that shows the meaning of the word (e.g., "An *octopus* grabbed the swimmer with its eight long legs," not "I have an *octopus*.")

5. Story retell. After reading the story and discussing it in their reading groups, students summarize the main points to their partners. The partners have a list of essential story elements that they use to check the completeness of the story summaries.

6. Spelling. Students pretest one another on a list of spelling words each week and then work over the course of the week to help one another master the list. Students use a "disappearing list" strategy in which they make new lists of missed words after each assessment until the list disappears and they can go back to the full list, repeating the process as many times as necessary.

7. Partner checking. After students complete each of the activities listed above, their partners initial a student assignment form indicating that they have completed or achieved criteria on that task. Students are given daily expectations as to the number of activities to be completed, but they can go at their own rate and complete the activities earlier if they wish, creating additional time for independent reading (see below).

8. Tests. At the end of three class periods, students are given a comprehension test on the story, are asked to write meaningful sentences for each vocabulary work, and are asked to read the word list aloud to the teacher. Students are not permitted to help one another on these tests. The test scores and evaluations of the story-related writings are major components of students' weekly team scores.

9. Direct instruction in reading comprehension. One day each week, students receive direct instruction from the teacher in reading comprehension skills, such as identifying main ideas, drawing conclusions, and comparing and contrasting ideas. A special step-by-step curriculum was designed for this purpose. After each lesson students work on reading comprehension worksheets or games as a whole team, first gaining consensus on one set of worksheet items, then practicing independently, assessing one another's work, and discussing any remaining problems on a second set of items.

10. Independent reading. Every evening, students are asked to read a trade book of their choice for at least 20 minutes. Parents initial forms indicating that students have read for the required time, and students contribute points to their teams if they submit a completed form each week. Students complete at least one book report every two weeks, for which they also receive team points. Independent reading and book reports replace all other

homework in reading and language arts. If students complete their basal-related activities or other activities early, they may also read their independent reading books in class.

11. Integrated language arts and writing. During language arts periods, teachers use a specific language arts-writing curriculum especially developed for the project. Students work on language arts in the same teams as in reading. During three 1-hour sessions each week, students participate in a writer's workshop, writing at their own pace on topics of their choice. Teachers present 10-minute mini-lessons at the beginning of each period on writing process, style, or mechanics, for example brainstorming for topics, conducting a peer revision conference, eliminating run-on sentences, or using quotations. Students spend the main part of the period planning, drafting, revising, editing, and publishing their writing. Informal and formal peer and teacher conferences are held during this time. Ten minutes at the end of the hour are reserved for sharing and "celebration" of student writing. Teacher-directed lessons on specific aspects of writing, such as organizing a narrative or a descriptive paragraph, using specific sensory words in a description, and ensuring noun-verb agreement, are conducted during two periods each week, and students practice and master these skills in their teams.

12. Involvement of special education resource teachers and reading teachers. One key concern in the design of the CIRC program was to fully integrate the activities of special education resource and remedial reading teachers with those of the regular classroom teachers. "Remedial reading" refers here both to chapter I reading programs and to LEA-funded remedial programs, which are organized similarly to Chapter I. This integration was done differently in the two evaluations of the full CIRC program. In the 12-week pilot study (Madden, Stevens, & Slavin, 1986), resource and remedial reading

teachers removed students from their reading classes for part or all of the reading period and implemented the CIRC program in separate areas. However, in a 24-week full-scale evaluation (Stevens, Madden, Slavin, & Farnish, 1986; Madden, Stevens, & Slavin, 1986), the schools involved scheduled resource and remedial reading pullouts at times other than reading or language arts-writing periods. Special and remedial reading teachers attended the CIRC training sessions but did not use CIRC methods or materials in their pullout programs, except that they occasionally helped student with problems they were encountering in the CIRC program used in the regular class.

Research on CIRC

Two studies have evaluated the impact of the full CIRC program. The following summaries of these studies are drawn from Slavin (in press).

Study 1. The first study (Madden, Stevens, & Slavin, 1986; Stevens, Madden, Slavin, & Farnish, 1987) evaluated the full CIRC program over a 12-week period. A total of 461 3rd- and 4th-grade students in 21 classes in a suburban Maryland school district participated in the study; 11 experimental classes were matched on standardized reading scores with 10 control classes.

After adjusting for pretests, analyses of variance using class means on the California Achievement Test (CAT) indicated that CIRC classes gained significantly more (30% to 36% of a grade equivalent more) than control students in reading comprehension and reading vocabulary, 52% of a grade equivalent more than control in language expression, and 72% of a grade equivalent more in spelling. Only in language mechanics were

experimental control differences not significant, and even here, the CIRC students gained a quarter of a grade equivalent more than control students. On writing samples CIRC students outperformed control students on ratings of organization, ideas, and mechanics, but these differences were only statistically significant for organization ratings, with an effect size of more than half of an individual-level standard deviation.

Tests for interactions with pretest levels indicated that the effects of CIRC were equal for students at all levels of prior achievement, high, average, and low. However, effects computed separately from special education and remedial reading students were not statistically significant in this study (Madden, Stevens, & Slavin, 1986).

Study 2. The second study (Stevens, Madden, Slavin, and Farnish, 1987) evaluated the effects of the CIRC program over a full school year, incorporating changes suggested by the experience of the pilot study. In addition to refinements in methods and materials, Study 2 changed the program for special education and remedial reading students. In Study 1 these students were pulled out of class (as usual) during reading times and experienced part or all of their exposure to the CIRC procedures in the pullout class. In Study 2, special education and remedial students were left in the regular class, and they were either pulled out for corrective instruction at other times or they were not given additional instruction.

Study 2 was conducted in a suburban school district different from that of the first study. A total of 450 students in 22 third and fourth grade classes participated; 9 experimental classes were matched with control classes on standardized reading and language scores. The CIRC program was implemented from October to March, a total of 24 weeks.

For the total samples involved, the results of Study 2 were even more positive than those of Study 1. On the California Achievement Test reading comprehension, language expression, and language mechanics scales, class-level analyses of variance indicated that CIRC students gained significantly more than control students, averaging gains of almost two-thirds of a grade equivalent more than control students. Differences of 20% of a grade equivalent on reading vocabulary were not significant, however. On writing samples, CIRC students again outperformed control students on organization, ideas, and mechanics ratings, but in this case the class-level analyses indicated significant differences only on ratings of ideas. Study 2 added informal reading inventories as measures of students' oral reading skills. CIRC students scored significantly higher than control students on word recognition, word analysis, fluency, error rate, and grade placement measures of the Durrell Informal Reading Inventory, with effect sizes ranging from 44% to 64% of a standard deviation.

As in Study 1, tests for interactions indicated that the CIRC program produced equal gains for students initially high, average, and low in reading skills.

Probably because of the longer duration and the fact that students were not pulled out of their reading classes, effects of the CIRc program on the reading achievement of special education and remedial reading students were much more positive than in Study 1. Mainstreamed special education students gained 1.92 grade equivalents more than special control students in reading comprehension and 1.44 grade equivalents more in reading vocabulary. Both of these differences were statistically significant using individual-level analyses of covariance. Remedial reading students gained significantly more in CIRC than in traditional methods on measures of reading comprehension, language expression, and language mechanics, with experimental control differences ranging from 66% to 80% of a

grade equivalent. On the informal reading inventory scales, students in the lowest third of their classes gained as much as 1.38 standard deviations more than control students in oral reading fluency, and made other outstanding gains in word recognition, word analysis, and overall grade placement.

CIRC in the Elementary School

As with TAI, CIRC is curriculum specific—reading, writing, and language arts—and schools using CIRC embed it into the curriculum with whatever set of basal readers they are using. Also, as with TAI, CIRC is a program specifically for use at the elementary level, and it is a complex program that requires commitment at the school level. In addition, CIRC integrates special education teachers into the classroom, a step toward making cooperative learning more of schoolwide process.

The CIRC program is new, materials are still being developed, and effective use of the program still requires collaboration with Johns Hopkins staff. Nonetheless, CIRC is now in use in an estimated 100 elementary schools. Also, the program has received approval for dissemination from the Federal Program Effectiveness Panel and is beginning funded dissemination through the National Diffusion Network.

Toward the Cooperative School

Where do cooperative learning and elementary schools go from here? Elementary schools now have a full range of cooperative learning processes. Cooperative learning can be used

daily throughout the year as *the* curriculum in reading, writing, and mathematics—the basics of the elementary school; the processes can be used supplementally in all other subject areas.

This, in fact, is step one toward the creation of the cooperative elementary school, proposed by Slavin (1987) as an exciting new possibility. Such a school would use cooperative learning methods in most classrooms and in many subjects and would view students helping one another learn as a fundamental principle of classroom organization. In short, cooperative learning would be a schoolwide norm.

This would be the beginning of the cooperative elementary school, according to Slavin. But the school would also integrate special education and remedial services with the regular school program; teachers would use peer-coaching processes to help each other learn new programs; they would have time to plan goals and strategies together, prepare common libraries of instructional materials, and make cooperative decisions about activities involving more than one class. Above and beyond this, a steering committee composed of the principal, teacher representatives, representatives of other staff, and parent representatives would work together to determine school practices and policies and monitor its progress toward its goals. Also, the cooperative school would invite the participation of all parents and community members.

Currently, five elementary schools are working closely with the Johns Hopkins researchers to integrate the various components of the cooperative school concept—a small number. But look back. In 17 years, the Johns Hopkins cooperative learning processes have moved from an initial exploratory study in a high school 11th grade, to the widespread use of

TGT, STAD, and Jigsaw II as supplemental instructional processes in schools throughout the nation, to the comprehensive curriculum-embedded use of TAI and CIRC in the basic elementary school areas of reading, writing, and mathematics. With the advent of the cooperative elementary school, the progression continues.

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Trends in Early Childhood and Elementary Education

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Multiple issues in early childhood and elementary education are being constantly debated, researched, and sometimes even resolved. Generally, resolution of an issue is gradual, coming as the research builds an array of evidence or as practice comes together in a consensus or as increasing demographic pressures finally cause a political resolution to be imposed.

This resolution of an educational issue as it occurs over time can be called a trend. There is no trend if research evidence, practice, and even demographics simply bounce around, supporting first one point of view and then another. To say that this often happens in education is an understatement. Lack of resolution is more like the norm as educators debate issues from opposite poles—with one pole usually being the child-centered developmental pole, the other being the academic content and skills pole. These opposing orientations are reflected in many aspects of our society—for example, in democratic versus authoritarian procedures of child rearing, in theory x versus theory y concepts of management practice, even in liberal versus conservative stands on political issues. In education, we see this bipolarization in such issues as open versus traditional education, in

testing versus nontesting, in lecture versus inquiry methods of instruction, in retention versus social promotion. We are all familiar with the bipolarized issues that make up the daily business of education.

When one side of a bipolarized issue gains more strength than the other side, a trend is in progress. Again, this gaining of strength may derive from research, from practice, from political considerations based on demographic factors, and from various interactions of these categories. Currently, multiple factors are influencing the trends occurring in early childhood education and elementary education. These include the growing population of at-risk students, the changing American family, the poor performance of American students in multiple subject areas and especially their low performance compared with that of students in other countries such as Japan, the school reform movement in response to this low student performance, the increasing role of the states in guiding education policy, the emergence of education research as a factor in education decision making, and the ever present push-pull between child-oriented education and performance-oriented education.

These factors are driving the emerging trends in early childcare, preschool, and kindergarten, and trends at the elementary school level in class size and uses of technology. Before examining each of these trends, we need a clear understanding of two of these influential factors—the demographic factors that delineate the population of children that schools must educate, and the school reform movement launched by the publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983).

Demographic factors

Demographic factors are currently especially powerful in driving the trends we will discuss in early childhood and elementary education. ASCD (1988) describes the situation succinctly. We are in the midst of "the grim realization that the children schools traditionally have served worst—minority students, the poor, and those who speak a language other than English—are becoming a larger part of the school population."

The characteristics of these children are enumerated by Hodgkinson (1987): Twenty-four percent are below the federal poverty line; more than one-third are minorities; many are non-English speaking (83% of America's immigrants are now from South America and Asia); far fewer are white, suburban, and middle class; 18% were born outside of marriage; about half live or will live with a single parent (in 1986, families with a working father, housewife mother, and two or more school-age children made up 4% of American households); about 11% have physical or emotional handicaps; 20% of the females will get pregnant during their teens, and by the time these children reach high school, more than two-thirds of their mothers will be working, most of them full-time.

Multiple sources document the verity of these demographics—they are a reality in the present and the future of American education (Natriello, McDill, & Pallas, 1988; Berlin & Sum, 1988; Commission on Work, Family, and Citizenship, 1988; Commission on Minority Participation in Education and American Life, 1988).

The School Reform Movement

In 1983, the National Commission on Excellence in Education issued *A Nation at Risk: The Imperative for Educational Reform.* For five years, through the current time, the education system has felt the ramifications of this report not only through the recommendations that it made (more time in school, higher standards, and so on), but also through the national pressure that it created for higher academic achievement by students. In fact, many of the report's recommendations have fallen by the wayside, but the abysmal picture that it painted of the depressing lack of academic achievement of America's children remains firmly etched in the hearts of educators, politicians, and the American public.

Since the report, little has occurred to take the heat off the education system. Results of the National Assessment of Educational Progress continue to show low performance in reading, writing, science, math, humanities, and geography. The results for reading from 1971 to 1984 (National Assessment of Educational Progress, 1985), reported as the percentage of 9-year-olds at or above five reading proficiency levels, clearly illustrate the general nature of the results for elementary school students.

Reading Level	**1971**	**1984**
Rudimentary	90.4%	93.9%
Basic	58.3	64.2
Intermediate	15.6	18.1
Adept	1.1	1.0
Advanced	0	0

Considering that these are 9-year-olds with most of their instruction in basic reading skills behind them, these numbers are indeed dismal. Dismal also is the miniscule increase over the 13-year period covered by these results. Throw in similar reported results by other NAEP assessments, international comparisons showing that the math achievement of American children lags behind the math achievement of Japanese children and other developed countries in all areas from arithmetic to statistics (Center for Education Statistics, 1987), America's declining competitiveness in the world marketplace, then add an increasingly technological world that demands higher educational skills from all participants, and you have an idea of the national pressure now being exerted on America's educational system to increase the academic achievement of all children.

This pressure is real and intense and, like demographics, exerts heavy influence on current trends in elementary education. Given this pressure, for example, should we really be surprised by the way formal academic instruction so often becomes the instructional norm when most educators and even practitioners argue vociferously for developmentally appropriate education?

Kindergarten

I will begin with kindergarten trends because they illustrate the multiple issues confronting elementary education and how various factors interact to produce trends that go against the reasoned advice of many educators, theorists, and practitioners.

Approximately 93% of American children attend kindergarten, and approximately 84% of kindergarten programs are provided by the public schools (Karweit, November, 1987). By 1986, 46 states provided free kindergarten for nearly all children, and by 1987 eight states had made kindergarten mandatory (Robinson, 1987). Also, although the majority of states report that half-day programs are most common, there are indications that the length of the kindergarten day is being extended (Robinson, 1987). Finally, most of the kindergarten programs in the public schools are focused directly on academics (22%) or on academic preparation (63%) (Educational Research Services, 1986).

From these numbers it is obvious that kindergarten attendance is no longer a trend but a *fait accompli* in the United States. What is becoming apparent is that an emphasis on formal academic instruction and academic achievement is emerging as dominant. Hitz and Wright (1988) conducted a statewide survey for the Oregon Department of Education of all principals with kindergartens in their schools, all kindergarten teachers, and 315 randomly selected first-grade teachers. Their findings probably mirror what is happening in most areas of the United States. They reported that 61% of the principals, 64% of the kindergarten teachers, and 72% of the first-grade teachers *agreed* that emphasis on academic skill development has increased. Only 2% or less of these three groups indicated a decreased emphasis on academics. Conversely, about 15% of the principals and teachers reported a decreased emphasis on child-selected activities and play.

In essence, kindergarten in the United States is moving quickly toward earning a title bestowed by Karweit (1988): "little more than a pint-sized first grade" (p. 21).

Multiple factors contributed to the institutionalization of kindergarten and its major emphasis on academic preparation and performance. The increase in working mothers and single-parent families produced a demand for child care. At the same time, children's low performance on national tests of reading, math, and writing, and the growing number of at-risk children whose test scores were even lower, drove educators to look for mechanisms for improving performance, and the academic-oriented kindergarten seemed a natural solution. Currently, research showing that the full-day kindergarten, compared to half-day, produces improved performance of disadvantaged students up into third grade will contribute to the increasing trend of offering full-day kindergarten (Karweit, April, 1987).

Another influential factor may have been the availability of teachers and facilities. Public school total enrollment decreased steadily from 1971 to 1984 (Center for Education Statistics, 1987), and these declining enrollments produced many elementary school closings. But ample space remained for installing kindergarten classrooms, and an ample supply of elementary school teachers was available because of the declining enrollments. The expansion of kindergarten provided these teachers with a place in the school. Robinson (1987) notes that 28 states indicate that their minimum requirement for kindergarten teachers is a bachelor's degree, and 11 states report that more than 20% of their kindergarten teachers hold master's degrees. It is possible that a substantial number of these displaced teachers have gotten special certification for kindergarten and training in early childhood education where required (in 39 states and 25 states, respectively) and moved into the kindergarten classroom, perhaps carrying with them an essentially academic-skills orientation—a factor further influencing the press of kindergarten toward academic pursuits.

Moyer, Egertson, and Isenberg (1987) conceded that "the curriculum of today's kindergarten focuses on specific skills to be learned, accompanied by great pressures on children to succeed" (p.235). They enumerate five reasons for this "misdirection" of the kindergarten program: societal pressure, misunderstanding about young children's development, aggressive marketing of materials by commercial publishers, a shortage of teachers specifically prepared to work with young children, and the reassignment of trained teachers in areas of declining enrollment.

For many school districts, the dominance of formal academic instruction in kindergarten programs has created another pressing issue—how to cope with the failures than an academic kindergarten program produces. Some parents take the initiative by "red-shirting" their children—starting them in kindergarten a year late, so they will be more mature and able to handle the academics. The Gesell Institute recommends setting up a developmental or prekindergarten, having children repeat kindergarten, or setting up a class between kindergarten and first grade (Schweinhart, 1988). In practice, these recommendations show up as a "junior kindergarten" (Galloway & George, 1986) and in programs that set up "steps" between kindergarten and first grade (Jennings, Burge, & Sitek, 1987).

These programs, although justifying themselves as seeking to provide appropriate developmental placement for young children, are essentially "retention" mechanisms, and the research on retention is almost uniformly negative. Socially promoted students consistently achieve as well or better as similar nonpromoted students (Shephard & Smith, 1986).

Another "solution" to kindergarten failure would be to better prepare the kindergarten students for an academically oriented kindergarten by putting them into academically oriented preschools the year before they enter. This would effectively do to the preschool what the first grade has done to the kindergarten—push the academic curriculum one year further downward.

Formal academic instruction as the basic kindergarten curriculum is past the trend stage and more into the entrenched stage. But *how entrenched* is always a legitimate question to ask. Rumblings on the horizon suggest that the entrenchment has a base that could crumble.

These rumblings come in the form of recent state actions. Gold (1988) reports that the Mississippi Education Department has announced its discontinuance of statewide standardized testing of kindergarten students because the testing "is shifting the kindergarten curriculum toward formal instruction and away from approaches that allow children to progress at their own rates" (p. 32). Also, the North Carolina legislature banned statewide standardized tests for first graders last year and recently passed legislation prohibiting their use at the local level; the Arizona legislature has limited standardized testing of first graders to a sample while the state develops alternative assessments; school-readiness task force in California has cautioned against the use of standardized tests and called for "drastically altered" assessment methods; and in Georgia, where statewide standardized testing in kindergarten has been mandated, the Georgia School Boards Association is opposing the use of formal school-readiness tests.

It remains to be seen over the next decade whether these actions are too little or too late, or whether the reasoned and expert advice of early childhood educators, theorists, researchers, and practitioners is poised to counterattack the established academic curriculum of kindergarten.

Preschool

The battle that was perhaps too halfheartedly fought and lost in kindergarten—essentially, a child-oriented developmental structure versus an academic skills structure—is being fought at a higher pitch in preschool and is in danger of being lost there as well.

The trend toward providing public preschool as part of the education system, especially for disadvantaged children, is in full swing. From 1970 to 1983, public and private preprimary enrollment increased from about 4.3 million to 5.7 million, despite a 5% decline in the 3- to 5-year-old population during this period, and is expected to reach approximately 7.2 million by 1993. Twenty-five states currently offer funded programs for at-risk preschoolers. Texas, for example, served nearly 36,000 low-income and limited English speaking 4-year-olds throughout the state in 1985-86 (National Governors' Association, 1987). Nationwide, almost half of all 4-year-olds were enrolled in preschool in 1986 (Center for Education Statistics, 1986, Figure 1).

Again, the driving factors behind the growth of preschool as an integral part of the education system are a mixture of demographic factors, political maneuverings, education

research findings, and the academic performance of American children. One demographic factor may be the overriding force—the need for child care by working mothers and single parents. Even if there were no research findings about the efficacy of preschool, and even if American children were performing well on their academic tests, the growing demand for child care while parents work might be enough in itself to move the political and educational system toward offering preschool.

The trend to provide public preschool for at-risk children, however, is unique in that it is very much driven by education research findings. The research findings on preschool offer a ray of hope to an educational system beseiged by low academic performance, dropout, substance abuse, deliquency—all the problems not only of at-risk youth but many other youth as well. Research on the effects of preschool, especially on at-risk children, is one of the strongest bodies of research in education today. Many studies are longitudinal and many compare treatment groups with control groups. And although some sample and methodological complaints can be justifiably aimed at any one of the studies, they cumulatively produce a set of consistent and believable findings—preschool improves the academic performance of at-risk children, produces less assignment to special education and less retention in grade, and improves graduation rates. Children who attend preschool may also be less deliquent, bear fewer illegitimate children, go on to postsecondary education, work more, and depend less on welfare (Berrueta-Clement et al., 1984; Lazar & Darlington, 1982; Gray, Ramsey, & Klous, 1982; Karnes, Shwedel, & Williams, 1983; McKey et al., 1985; Miller & Bizzel, 1983). The positive findings for preschool have also been found for home-based preschool programs in rural areas of the country (Gotts, 1983, 1987).

Another force in preschool growth, besides demographics and research findings, is cited by Karweit (1988). She notes that between 1975 and 1984, the greatest attendance growth occurred in private preschools serving white high-income children whose mothers were *not* in the labor force. It is logical to conclude that many if not most of these children's parents were looking for academic enhancement for their children, and just as logical to project that if these parents shift their children into free public preschools, they will maintain a strong press for an academic curriculum.

The efficacy of preschool and the growth of preschool are established trends. The central issue now is whether preschool programs will be oriented toward academic skills or toward meeting the developmental needs of 3- and 4-year-old children.

Most education theorists and researchers come down solidly on the side of appropriate high quality developmental programs in preschool. They point out that the research findings concerning preschool effects were based on studies of high quality programs that schools may not duplicate easily (Karweit, 1988; Zigler, 1986). Elkind (1986a, 1986b) argues against miseducating young children by exposing them to formal instruction. Katz (1987a, 1987b) notes the importance of maintaining children's *disposition* to learn, which would be hurt by early academic instruction. The National Association for the Education of Young Children issued a position statement placing developmental appropriateness at the head of the list for preschool programs (National Association for the Education of Young Children, 1986), and six national associations including NAEYC issued a joint statement of concerns about practices in pre-first grade reading instruction that emphasized involving children

actively in meaningful and functional language experiences (ACEI, ASCD, IRA, NAEYC, NAESP, & NCTE, 1986). A complete list of proponents of developmentally appropriate activities in preschool—as opposed to formal academic instruction—would cover another five pages.

Who, then, is arguing that preschools should provide formal academic instruction but *not* developmentally appropriate activities? Few people are making this argument. Bereiter and Engelmann (1966), Becker (1977), and others have developed direct instruction programs and found that these programs improve student achievement in preschool and in elementary school--thus they recommend direct instruction as a teaching method, but do not insist that it dominate the preschool curriculum or that it not incorporate developmental aspects. Gersten and White (1986), commenting on Schweinhart, Weikhart, and Larner's (1986) study of the effects of three preschool models, note research reporting that students initiated as many interactions with teachers in one program as in the others, and that expert consultants, when observing, did not find the models to be distinct. Carnine (ASCD, 1988) notes that direct instruction should be combined with less structured developmental activities. Conversely, proponents of quality developmental programs note that academics is not taboo in these programs (Day & Drake, 1986).

A recent survey of the states found that about half of those that have mandated preschool programs *require* comprehensive developmental approaches, while the remaining states either do not specify or focus primarily on a cognitive—not formal academic instruction—curriculum (Mitchell, 1987). Thus the states are very much insistent on

developmentally appropriate curricula in preschool. The issue of formal academic instruction versus developmentally appropriate activities in preschool seems to be a "straw" man—everyone is pretty much arguing against something that few others are arguing for.

But this picture is truly deceptive, because the issue that so few are arguing for, formal academic instruction in preschool, may easily become reality. It has essentially become the reality in kindergarten. How is this possible?

We have no answers, only hypotheses. If the preschool becomes a part of the education system, then the natural progression would be for the didactic teaching methods of the elementary schools and kindergartens to trickle down. If performance on academic tests is the primary measure of the success of preschool programs, then the natural progression would be for preschool teachers to provide formal instruction to help their preschoolers pass those tests. Karweit (1988) notes that a demand for accountability creates pressure for preschools to use standardized tests to demonstrate effectiveness. In the early years, standardized tests focus on the mechanics of reading, language, and computation because these variables can be somewhat reliably measured. These convenient testable objectives then begin to drive the curriculum and come to exclude developmental curriculum emphases.

If the purpose of preschool is to improve the academic performance of at-risk children, then the natural progression would be for the preschool to concentrate on academic performance. Elkind (1986c) notes that some administrators believe that early childhood

programs should be a downward extension of formal education. If the expectations of parents are that their children attend preschool in order to prepare themselves to read, write, and compute, then the natural progression would be for these academic criteria to become the measured goals of the preschool.

In looking at trends in preschool education, then, we can make two predictions. First, preschool education will continue to expand. Second, despite the opposition from educators, researchers, and even practitioners, preschools will go the way that kindergartens have gone—providing more and more formal teacher-directed academic instruction.

What could negate this last prediction? First, a resurgence of academic achievement in general: if our children were performing well academically in elementary, middle, and high school, the press for academic instruction in preschool would lessen considerably. Second, a series of strong research studies providing evidence that developmental programs, compared to academic instruction programs, will indeed produce higher student academic achievement as well as children who are more self-directed, creative, independent, and so on. Early childhood educators seeking developmental curricula in preschools must pay attention to the lesson taught by the open education movement in this country. The open education concept had a long trial run in the elementary schools of America. Its goals and its procedures paralleled the goals and procedures of developmentally appropriate preschool education. But now only scattered remnants of open education exist, because when evaluated open education could not show consistent improvement of academic achievement and other outcomes. Numerous excuses exist for this lack of evaluation results, many have

nothing to do with the real effectiveness of open education, but the bottom line remains—no strong, convincing evidence was found to show that open education delivered on its promises.

The proponents of developmental preschool find themselves in an ironic situation. One major irony is that an overwhelming majority of people support the idea of developmental preschool, yet the formal academic instruction of preschool children may well become the dominant mode. A second major irony is that developmental preschool must prove its efficacy for later student academic and life success in order to keep formal academic instruction from becoming the preschool norm—even though, at present, the research on the effects of developmental preschool programs is as strong as, if not stronger than, the research on the effects of formal academic instruction in preschool (Elkind, 1986c).

Early childhood educators, theorists, and researchers must also exercise care in their pursuit of strong, convincing research devoted to proving the efficacy of developmental programs. The job, I think, is not to try to discredit formal academic instruction with teased-out implications of research that may not be credible (Karwiet, 1988; Gottfredson, 1987), but to offer a convincingly evaluated alternative.

Child Care

As kindergarten attendance approaches 100% and preschool attendance moves beyond 50%, the further extension downward of services for children who are 1, 2, and 3 years old will

not lag far behind. These demographics worked strongly enough to influence both Democrats and Republicans in the 1989 election year to come out strongly for child care funding. Congressional Democrats introduced a bill to spend $2.5 billion a year to help states provide day care for lower income working families. The Republican candidate proposed a $2.2 billion program to give low-income families a $1,000 tax credit or payment per year for each child under 4 years of age.

The demographics imply that child care for children under 4 will expand; logic implies that the issues contested in kindergarten and preschool will be contested again in this new arena. For example, Clarke-Stewart (1988) describes the "superbaby" trend, parents pushing from birth (or before) to produce child prodigies, while Meyerhoff and White (1986) describe the New Parents as Teachers project of the Missouri Department of Education, which provides information and advice to parents from the third trimester of pregnancy until the child's third birthday about appropriate developmental activities for their children.

Trends in Elementary Education

Although the education of children in elementary school is heavily dominated by specific subject and skill areas that are not the province of the ERIC/EECE Clearinghouse, this paper will examine three trends in elementary education that cut across curricula and influence a number of subject areas—class size, use of technology, and the trend toward academic "push-down."

Class Size

For a number of reasons, reduction of class size in elementary school classrooms has emerged as a "cause" over the past few years, but smaller class size in elementary schools has been a trend for much longer. The National Education Association (1987) reports that average class size in elementary classrooms (nondepartmentalized) has fallen from a mean of 29 in 1961 to a mean of 24 in 1986. Also, the percentage of elementary teachers having fewer than 25 students in the classroom has increased from 22.4% in 1961 to 51.2% in 1986.

Similarly, pupil-teacher ratios in public elementary schools have decreased from 22.3 in 1970-71 to 17.9 (preliminary tabulation) in 1985-86 (Center for Education Statistics, 1987). Pupil-teacher ratios are smaller than class size figures because they include full-time equivalent teachers who do not have regular classroom assignments, such as art, music, and special education teachers. This trend, thus far, has been driven primarily by demographic factors. Snyder (1987) reports that from 1971 to 1984, total public school enrollment decreased steadily, and elementary school (K-8) enrollment hit a low point of 26.9 million in 1984. At the same time, these enrollment declines were not accompanied by decreases in the number of teachers in the 1970s, and the decline that did occur in the early 1980s was mainly in secondary teachers. Thus elementary school during this period had declining student enrollments but stable teacher employment, making substantial reductions in class size a reality.

The current trend, however, is no longer demographically driven—in fact, elementary school enrollments are again increasing and teacher shortages are occuring. By 1990, elementary enrollment is expected to be at 29.6 million and is expected to reach a high of 31.9 million in 1997. At the same time, the number of teachers needed at the elementary school level is expected to increase 13% by 1990 (Snyder, 1987).

These "new" demographics, if unaccompanied by other mitigating factors, could be expected to reverse the class size reductions of the past 25 years, especialy since many elementary schools were closed during the long period of declining enrollments. The new situation is this: fewer elementary schools, more elementary students, not enough elementary school teachers. This combination definitely projects increased class size.

But there are a host of mitigating factors. Reduced class size has been seized upon by the states as an element of the reform movement. As of 1986, 18 states and the District of Columbia were enacting or contemplating reduced class size legislation (Education Commission of the States, 1986). The National Governors' Association (1987) noted that many states are lowering class size requirements, particularly in the primary grades, to give children more individual instruction. At the same time, teachers support class size reduction as unanimously as teachers can support anything, and the National Education Association (1986) has declared "15" as the optimum class size and the goal to be sought.

The current situation, then, has become a square-off between smaller class size advocates—teachers, politicians, and reform movement leaders—and demographic factors

that would dictate larger class sizes. It is somewhat ironic that the current push for reduction comes at the very time the demographics have shifted in a way that makes reduction less likely.

A logical question arises—can education research provide evidence about the efficacy of smaller class size for student achievement that will help smaller class size advocates realize their hoped for further reductions? After all, research on the effects of preschool contributed heavily to the growth of preschools. Couldn't research on class size either contribute to the trend toward reduction or tone it down, depending on the findings? The answer so far is *no*, and the reason is that the class size reduction issue and trend is currently driven by politics and practice. When politics and practice agree on an issue, research takes a back seat—at least for a time—unless it supports the direction that politics and practice are already heading in.

Politicians and practitioners, under pressure from parents and the public, cannot wait for final and conclusive research evidence before implementing changes that seem beneficial. Such an issue is class size. What could be more logical than the idea that students will learn better in smaller classes in which they get more individial teacher attention?

But this logical outcome, according to the latest research on class size, does not necessarily happen in practice. Although previous analyses of the effects of class size found some benefits of smaller classes for student achievement (Glass & Smith, 1978; Educational Research Service, 1980), more recent analyses and interpretations (Slavin, 1987; Tomlinson,

1988) dispute these findings, finding few effects, especially for the range of class size reductions (from 24 to 20, and even to 15), being advocated by proponents of reductions.

The argument, however, is not about class size reduction in itself, but about creating conditions in which effective teaching can take place. In essence, advocates of smaller classes agree with the latest research findings that reduced class size, with no corresponding changes in how students are taught, will produce few benefits for student learning. They argue that smaller class size is a necessary prerequisite for making those corresponding changes, so let's get on with it. Researchers, taking a historical view, simply point out that the reduction from class sizes of 29 in 1970-71 to 24 in 1985-86 has produced no discernible changes in teacher instruction, so why should further reduction to 20 or even 15 make a difference (Tomlinson, 1988)?

Thus the role of education research in the class size debate has been negligible to date, except that early findings that smaller class size promoted student achievement were and are still being used extensively to keep the smaller class size trend moving. The later findings, going against the grain of a movement supported by politics and by practitioners, have yet to be seriously considered.

Technology—Use of Microcomputers

If ever a trend had, and perhaps still has, the potential to develop into an institution in elementary education, it was the use of microcomputers in schools. Between spring 1983

and spring 1988, the number of microcomputers in use in schools has increased from about 250,000 to over two million (Becker, 1988). The proportion of elementary schools that had five or more microcomputers jumped from 7% to 54% from spring 1983 to spring 1985 alone (Becker, 1985). Along with this explosion in school purchases of microcomputers, many educators were hailing the use of microcomputers as a genuine revolution in instructional practice, while others were urging more restraint (Kay, 1977; Becker, 1983).

Now, in recent retrospect, we can see that the use of microcomputers in elementary schools faced multiple difficulties, all of which over time have served to dampen the revolutionary enthusiasm. Some of the major difficulties were the following:

1. Schools faced the organizational problem of how to use equipment primarily designed for individual use—the "personal" computer—in the context of group-based classroom instruction. An elementary school with ten microcomputers, a large number, still has only one microcomputer for about every two classrooms.

2. Integration of microcomputer use with the elementary school curriculum required planning and revision on a large scale.

3. Available software had problems of accuracy and appropriateness.

4. Many teachers resisted the imposition of a new "technology" in their instruction.

Thus the use of microcomputers in elementary schools, despite all the early promise, faced many problems in practice. At the same time, research on the effectiveness of microcomputer use in instruction was finding few benefits for student achievement (Sapona et al., 1986; Bass et al., 1986; Zuk, 1986). In a comprehensive review of the research on the effects of microcomputers in instruction, primarily in upper elementary classrooms, Becker (1987) concluded not only that little evidence existed for microcomputer effectiveness, but also that the research provided little guidance for schools to decide how to use microcomputers for instruction.

The initial revolutionary fervor for microcomputer use has subsided greatly in the face of problems in practice and research findings of little effectiveness. No doubt, over time, microcomputer use in schools will find its niche, and that niche may even be major uses in instruction, but the process will be a much longer one than most educators anticipated.

Academic Push-Down

Alan Shedlin (1985), director of the Elementary School Center advocacy group for elementary schools, argues that middle and secondary schools could benefit much from employing practices and curricular emphases used in elementary schools. The influence on practice and curriculum, however, is clearly headed in the opposite direction.

Katz (1987a) describes the "push-down" phenomenon, in which the academic work of first grade has been moved down to the kindergarten level. Earlier in this paper, we noted that

the same outcome could easily happen in preschool. But the push-down may not be confined to these two areas—it may also become prevalent in the later elementary grades.

In these grades, the push-down takes the form of departmentalization—usually, the use of specialized teachers delivering specific subject-matter instruction, with elementary school students rotated into their classrooms.

The justification of departmentalization in secondary schools is that academic subject matter is increasingly difficult and must be taught by an expert if the children are to learn. This same rationale is now applied to the upper grades of the elementary school for math, science, and other subjects in a number of school districts.

An analysis of the organizational practices of schools in Pennsylvania (McPartland, Coldiron, & Braddock, 1987) found that teacher assignments in fourth grade were about 8% totally departmentalized, 32% a mixture of departmentalized and self-contained, and 60% self-contained. The same analyses also found pervasive between-class tracking in elementary schools, another practice used in the secondary schools supposedly to improve academic achievement.

All these push-down phenomena, the use of academic instruction in kindergarten and preschool, and the push toward departmentalization and even tracking in later elementary grades, can be seen as a natural part of our national press to improve students' academic achievement. Goodlad (cited in L. Soike & K. Soike, 1988) notes in an interview that "the

departmental movement ... always comes back as a proposal along with worry about test scores, more attention to subject fields, less attention to the developmental processes of children, and so on."

The real irony, of course, is that no research proof exists to support the idea that these structures promote student achievement better than any other structures, although some evidence does point to damage done by these structures on student socialization outcomes.

The academic orientation push-down occurring in the upper elementary grades, although driven by the press for improved achievement, is now also getting a boost from the demographics of teacher supply. In the late 1980s and through the early 1990s, a declining student population beginning in the middle grades and progressing through high school will free up a number of middle grade and high school teachers, while the increasing population of elementary school students will create a demand for more elementary teachers.
The natural progression will be reassignment of teachers—middle school teachers into the elementary grades, and high school teachers into the middle grades. In each case, most of these teachers will be subject-matter oriented as opposed to child development oriented, and their orientations will increase the academic press occurring in the upper elementary grades.

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Part II. ERIC Digests and Resource Lists on Group Learning

ERIC Clearinghouse on Elementary and Early Childhood Education
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ERIC Digest

Ability Grouping in Elementary Schools

John Hollifield

What Is Ability Grouping?

Ability grouping of students is one of the oldest and most controversial issues in elementary and secondary schools. Hundreds of research studies have examined the effects of the two most common variants: between-class and within-class ability grouping. Between-class grouping refers to a school's practice of forming classrooms that contain students of similar ability. Within-class grouping refers to a teacher's practice of forming groups of students of similar ability within an individual class.

This digest summarizes the conclusions of Robert E. Slavin's 1986 comprehensive review of research on the different types of ability grouping in elementary schools. The purpose of his review was to identify grouping practices that promote student achievement.

Why Use Ability Grouping?

In theory, ability grouping increases student achievement by reducing the disparity in student ability levels, and this increases the likelihood that teachers can provide instruction that is neither too easy nor too hard for most students. The assumption is that ability grouping allows the teacher (1) to increase the pace and raise the level of instruction for high achievers, and (2) to provide more individual attention, repetition, and review for low achievers. The high achievers benefit from having to compete with one another, and the low achievers benefit from not having to compete with their more able peers.

One of the main arguments against ability grouping is that the practice creates classes or groups of low achievers who are deprived of the example and stimulation provided by high achievers. Labeling students according to ability and assigning them to low-achievement groups may also communicate self-fulfilling low expectations. Further, groups with low performance often receive a lower quality of instruction than other groups. Slavin sees as the most compelling argument against ability grouping its creation of academic elites, a practice which goes against democratic ideals.

How Does Grouping Affect Student Achievement?

In his review, Slavin examines evidence on the achievement effects of five comprehensive ability grouping plans in elementary schools. His review draws conclusions about the effectiveness of the following grouping plans: ability grouped class assignment, regrouping for reading or mathematics, the Joplin Plan, nongraded plans, and within-class ability grouping.

Ability Grouped Class Assignment. This grouping plan places students in one self-contained class on the basis of ability or achievement. In some departmentalized upper elementary grades, the class may move as a whole from teacher to teacher. Evidence suggests that ability grouped class assignment does not enhance student achievement in the elementary school.

Regrouping for Reading and Mathematics. Under this plan, students are assigned to heterogeneous homeroom classes for most of the day, but are regrouped according to achievement level for one or more subjects. For example, all students from various homeroom classes of one grade level might be re-sorted into ability grouped classes for a period of reading instruction. Results indicate that regrouping for reading or mathematics can improve student achievement. However, the level and pace of instruction must be adapted to achievement level. Furthermore, students must not be regrouped for more than one or two subjects.

The Joplin Plan. This grouping plan assigns students to heterogeneous classes for most of the day but regroups them across grade levels for reading instruction. For example, a reading class at the fifth grade, first semester level might include high achieving fourth graders, average achieving fifth graders, and low achieving sixth graders. There is strong evidence that the Joplin Plan increases reading achievement.

Nongraded Plan. This plan includes a variety of related grouping plans that place students in flexible groups according to performance rather than age. Thus, grade-level designations are eliminated. The curriculum for each subject is divided into levels through which students progress at their own rates. Well-con-

trolled studies conducted in regular schools generally support the use of comprehensive nongraded plans.

Within-class Ability Grouping. This plan is generally used for reading or mathematics. Teachers assign students within their classroom to one of a small number of groups based on ability level. These groups work on different materials at rates unique to their needs and abilities. Too few studies have been conducted on the use of within-class ability grouping in reading to support or challenge its effectiveness. Part of the problem is that within-class grouping is so widespread in reading instruction that it is difficult to conduct research that includes a control group not using the practice. Research on within-class ability grouping in mathematics clearly supports the practice, especially when only two or three groups are formed. The positive effects are slightly greater for low-achieving students than for average or high achievers.

What Should Schools and Teachers Do About Ability Grouping?

Slavin concludes that schools and teachers should use the methods proved most effective, such as within-class ability grouping in mathematics, nongraded plans in reading, and the Joplin Plan. The review recommends that schools find alternatives to the use of ability grouped class assignment, such as assigning students to self-contained classes according to general ability or performance level.

Based on his examination of the features of successful and unsuccessful practices, Slavin recommends that the following elements be included in successful ability grouping plans:

- Students should identify primarily with a heterogeneous class. They should be regrouped by ability only when reducing heterogeneity is particularly important for learning, as is the case with math or reading instruction.
- Grouping plans should reduce student heterogeneity in the specific skill being taught, not in IQ or overall achievement level.
- Grouping plans should allow for frequent reassessment of student placement and for easy reassignment based on student progress.
- Teachers must vary the level and pace of instruction according to student levels of readiness and learning rates in regrouped classes.
- Only a small number of groups should be formed in within-class ability grouping. This will allow the teacher to provide adequate direct instruction for each group.

FOR MORE INFORMATION

Slavin, Robert E. *Ability Grouping and Student Achievement in Elementary Schools: A Best-Evidence Synthesis.* Baltimore, MD: Center for Research on Elementary and Middle Schools, 1986.

This digest was prepared for the ERIC Clearinghouse on Elementary and Early Childhood Education, 1987.

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ERIC Digest

EDO-PS-88-5

Cooperative Learning Strategies and Children

Lawrence Lyman and Harvey C. Foyle

Cooperative learning is a teaching strategy involving children's participation in small group learning activities that promote positive interaction. This digest discusses the reasons for using cooperative learning in centers and classrooms, ways to implement the strategy, and the long-term benefits for children's education.

Why Try Cooperative Learning?

Cooperative learning promotes academic achievement, is relatively easy to implement, and is not expensive. Children's improved behavior and attendance, and increased liking of school, are some of the benefits of cooperative learning (Slavin, 1987).

Although much of the research on cooperative learning has been done with older students, cooperative learning strategies are effective with younger children in preschool centers and primary classrooms. In addition to the positive outcomes just noted, cooperative learning promotes student motivation, encourages group processes, fosters social and academic interaction among students, and rewards successful group participation.

Can Cooperative Learning Be Used in Early Childhood Classes?

When a child first comes to a structured educational setting, one of the teacher's goals is to help the child move from being aware only of himself or herself to becoming aware of other children. At this stage of learning, teachers are concerned that children learn to share, take turns, and show caring behaviors for others. Structured activities which promote cooperation can help to bring about these outcomes. One of the most consistent research findings is that cooperative learning activities improve children's relationships with peers, especially those of different social and ethnic groups.

When children begin to work on readiness tasks, cooperation can provide opportunities for sharing ideas, learning how others think and react to problems, and practicing oral language skills in small groups. Cooperative learning in early childhood can promote positive feelings toward school, teachers, and peers. These feelings build an important base for further success in school.

What Are the Advantages of Cooperative Learning for Elementary School Students?

According to Glasser (1986), children's motivation to work in elementary school is dependent on the extent to which their basic psychological needs are met. Cooperative learning increases student motivation by providing peer support. As part of a learning team, students can achieve success by working well with others. Students are also encouraged to learn material in greater depth than they might otherwise have done, and to think of creative ways to convince the teacher that they have mastered the required material.

Cooperative learning helps students feel successful at every academic level. In cooperative learning teams, low-achieving students can make contributions to a group and experience success, and all students can increase their understanding of ideas by explaining them to others (Featherstone, 1986).

Components of the cooperative learning process as described by Johnson and Johnson (1984) are complimentary to the goals of early childhood education. For example, well-constructed cooperative learning tasks involve positive interdependence on others and individual accountability. To work successfully in a cooperative learning team, however, students must also master interpersonal skills needed for the group to accomplish its tasks.

Cooperative learning has also been shown to improve relationships among students from different ethnic backgrounds. Slavin (1980) notes: "Cooperative learning methods [sanctioned by the school] embody the requirements of cooperative, equal status interaction between students of different ethnic backgrounds..."

For older students, teaching has traditionally stressed competition and individual learning. When students are given cooperative tasks, however, learning is assessed individually, and rewards are given on the basis of the group's performance (Featherstone, 1986). When children are taught the skills needed for group participation when they first enter a structured setting, the foundation is laid for later school success.

How Can Teachers Use Cooperative Learning Strategies?

Foyle and Lyman (1988) identify the basic steps involved in successful implementation of cooperative learning activities:

1. The content to be taught is identified, and criteria for mastery are determined by the teacher.

2. The most useful cooperative learning technique is identified, and the group size is determined by the teacher.

3. Students are assigned to groups.

4. The classroom is arranged to facilitate group interaction.

5. Group processes are taught or reviewed as needed to assure that the groups run smoothly.

6. The teacher develops expectations for group learning and makes sure students understand the purpose of the learning that will take place. A time line for activities is made clear to students.

7. The teacher presents initial material as appropriate, using whatever techniques she or he chooses.

8. The teacher monitors student interaction in the groups, and provides assistance and clarification as needed. The teacher reviews group skills and facilitates problem-solving when necessary.

9. Student outcomes are evaluated. Students must individually demonstrate mastery of important skills or concepts of the learning. Evaluation is based on observations of student performance or oral responses to questions; paper and pencil need not be used.

10. Groups are rewarded for success. Verbal praise by the teacher, or recognition in the class newsletter or on the bulletin board can be used to reward high-achieving groups.

Conclusion

Early childhood educators can use many of the same strategies and activities currently being used to encourage cooperation and interaction in older children. Effective cooperative learning experiences increase the probability of children's success throughout their school years.

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Slavin, Robert. *Cooperative Learning: What Research Says to the Teacher.* Baltimore, MD: Center for Social Organization of Schools, 1980.

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EDO-PS-88-8

Cooperative Problem-Solving in the Classroom

Jonathan Tudge and David Caruso

Over the years, early childhood education has stressed the importance of cooperative play and learning for the young child's development (Dewey, 1897). Cooperative learning involves children in the active exchange of ideas rather than passive learning. Research has demonstrated the potential of cooperative problem-solving for enhancing young children's cognitive development and learning.

Cooperative problem-solving is likely to be effective if children share a goal, and have differing perspectives on the best way of attaining it. This sharing of differing points of view in the attempt to achieve a common goal results in cognitive advance. Cooperative problem-solving often occurs in classrooms—for example, when two children attempt to ride on a swing at the same time.

Piaget and Cooperative Problem-Solving

Research on the effects of collaboration between peers on cognitive development has primarily been based on Piaget's theory concerning the impact of social interaction on cognitive and moral development (Piaget, 1932, 1959). Piaget maintained that opportunities for becoming less egocentric are more common when children discuss things with each other because then they must face the fact that not everyone has the same perspective on a situation. Psychologists have based most of their research in this area on Piaget's theory, and have examined children's performance on conservation tasks, working in pairs and individually. Several researchers have found that children who were paired with a more advanced child were later able to solve conservation tasks at a higher level, while children who worked individually did not improve.

Piagetian scholars argue that cognitive conflict—a difference in perspective that leads to discussion of each partner's opinion—is necessary for development. In trying to resolve conflicts, partners have to explain to each other their points of view. In the course of the explanation, the less advanced child can be led to greater understanding.

Study results (Tudge, 1985, 1986) suggest that in the absence of feedback, cognitive conflict (brought about by pairing children with different perspectives) only helps children who reason at a less advanced level than their partner when the partner is confident of his or her opinions. But in a third study (Tudge, 1987), in which children discovered whether or not their views were correct, children improved regardless of whether their partner initially reasoned at a less or a more advanced level. Thus our research indicates that the effects of cooperative problem-solving are by no means straightforward. We can merely suggest possible consequences of encouraging collaboration in the classroom.

Guidelines for Teachers

Teachers can encourage children to interact and share their perspectives during cooperative play by:

Planning activities in which children have a shared goal.
It is not enough to have children working side by side on an activity. For example, when two children are playing with building blocks together but working on different parts of a structure, they may not be trying to accomplish the same goal. Children who try to achieve a shared objective will find it helpful to discuss their ideas about the problem and agree on a strategy. Teachers can promote real cooperative activity by encouraging collaboration during the activity-planning stage.

Ensuring that the goal is intrinsically interesting.
Young children are likely to pursue a goal only if they find it interesting. Quite often, when teachers present problems that they see as important, they inadvertently fail to consider the children's degree of interest in solving the problem. One effective approach for maximizing the child's intrinsic interest is to involve children in activities in which they can determine their own objectives, that is, activities with several possible goals or which offer several ways of reaching the goals.

Making it possible for children to achieve their goal through their own actions.
This guideline, suggested by Kamii and DeVries (1978) for physical knowledge activities, can lead to successful cooperative problem-solving. Through acting on objects and observing the effects, young children receive feed-

back, which helps them adapt their differing perspectives when working cooperatively. Rolling a ball down a ramp to hit a target, for example, provides many opportunities for adapting the actions involved. Children can vary the speed and direction of the ball, the slope of the ramp, and so forth. They can discuss why they miss the target and the best way to solve the problem.

Seeing to it that the results of the child's actions are visible and immediate.
The give and take of sharing perspectives and strategies during cooperative activity will be encouraged by immediate feedback about the results of children's actions. As Kamii and DeVries (1978) point out, when children see results, they are likely to be motivated to keep trying different strategies. Contrast an activity such as planting seeds, which results in a long-delayed reaction, with a game of target-ball, in which the child chooses the objective, produces the object's action, and observes an immediate result.

The Teacher's Role in Cooperative Problem-Solving

Because the objective of cooperative problem-solving is for children to share perspectives as they pursue goals, it is essential that teachers encourage and suggest rather than give directions. These guidelines will help teachers in this effort:

1. *Encourage children to interact with each other.*
A teacher might introduce an activity in an open-ended way by saying, "Here's an activity for 2 or 3 children. What do you think we could do with these things, Brett and Sally?" This conveys the importance of each child's perspective and encourages children to come up with their own goals.

2. *Help children clarify or adapt their shared goals.*
In order for children to pursue goals cooperatively, they must agree upon a clearly delineated goal. During early childhood, when children often act first and discuss later, a teacher can play a vital role by helping them clarify their goal before they attempt to solve the problem. Teachers can verbalize the objective for the children. A teacher might say, for example, "I see. You're trying to get this water over there by using the tubes and funnels."

3. *Involve children who are unlikely to initiate.*
Quieter children are less likely than more assertive children to become involved or state their ideas. It is critical for teachers to encourage these children to participate and to help them state their perspectives on the problem.

Teaching strategies that may be appropriate for other activities limit the effectiveness of cooperative problem-solving. Even if children are struggling, it is not appropriate to demonstrate solutions or solve a problem for them. Research suggests that arriving at the correct answer is less important for children's cognitive development than the process of struggling with the problem cooperatively.

Conclusion

As Damon (1984) points out, when children explore new possibilities jointly, their thinking is not constrained by an expert who "knows better," but rather is limited only by the boundaries of their mutual imaginations. When teachers present problems that children at differing developmental levels can work on together, encourage children's efforts to share perspectives, and help children arrive at a common objective, cooperative problem-solving becomes a valuable part of the curriculum.

This digest was adapted by Sue Ann Kendall from "Cooperative Problem Solving in the Classroom: Enhancing Young Children's Cognitive Development," *Young Children*, November, 1988, pp. 46-52.

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Tudge, J. R. H. *Beyond Conflict: The Role of Reasoning in Collaborative Problem-Solving*. Paper presented at the Piaget Society Conference, Philadelphia, May 30, 1986. ED 275 395.

Tudge, J. R. H. *Peer Collaboration and Cognitive Development*. Paper presented at the biennial meeting of the Society for Research in Child Development, Baltimore, April 24, 1987.

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This publication was funded by the Office of Educational Research and Improvement, U.S. Department of Education. Opinions expressed in this report do not necessarily reflect the positions or policies of OERI.

Mixed-Age Grouping and Cooperative Learning

ERIC DOCUMENTS

ED 295 910
Slavin, Robert E. **Student Team Learning: An Overview and Practical Guide**. Second Edition. (1988). 84p.
This manual provides descriptions of five cooperative learning methods: (1) Student Teams-Achievement Divisions (STAD); (2) Teams-Games-Tournaments (TGT); (3) Jigsaw; (4) Team Accelerated Instruction (TAI); and (5) Cooperative Integrated Reading and Composition (CIRC). For each of these methods, an overview offers a description of the procedures followed, methods of preparation, ways to begin, and a schedule of activities involved. Similarities and differences between the methods are discussed, and research evidence on the effectiveness of various kinds of team learning is considered.

ED 293 827
Fenton, Ray J. **The Effects of Training in Small Group Instruction.** Paper prepared for the Convention of the Western Speech Communication Association (San Diego, CA, February 19-23, 1988). 1988. 43 p.
This paper reviews the results of training more than 2,000 teachers in a small group instructional method. Comparisons were made between teachers with more than 15 hours of training and teachers with fewer hours of training. It was found that teachers who had more training were more likely to use small group instructional methods in a variety of subject areas, to encourage students to share materials, to divide materials so that students would have to work as a group, and to provide feedback on group processes and cooperation. Notable differences were reported in students' experiences and attitudes on many levels, and students of both more- and less-trained teachers made small academic gains. Lower achievers made the most academic gains from small group instruction.

ED 291 245
Pierce, Lorraine Valdez, compiler. **Cooperative Learning: Integrating Language and Content-Area Instruction.** Teacher Resource Guide Series, Number 2. National Clearinghouse for Bilingual Education, Wheaton, MD. 1987. 26 p.
Insights gained from experience and research on language minority students' academic success are reviewed as background for presentation of a curriculum that is bilingual and content-based and uses cooperative learning techniques. First, findings on three elements of success (interest and motivation, intelligence and development, and psychosocial access) are examined. The discussion then turns to providing students with access to learning opportunities, the process of concept development, the relationship between student and teacher, and development of cooperative work skills. Finally, the Finding Out/Descubrimiento Approach is described and its curriculum is outlined. The approach, used in grades 2 through 5, provides an integrated language skills program for oral and written communication mastery in English and Spanish within a cooperative learning environment.

ED 294 926
Glassman, Phyllis. **A Study of Cooperative Learning in Mathematics, Writing, and Reading as Implemented in Third, Fourth, and Fifth Grade Classes: A Focus upon Achievement, Attitudes and Self-Esteem for Males, Females, Blacks, Hispanics, and Anglos.** Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 5-9, 1988). 64 p.
Two elementary schools in the Bay Shore District of Bay Shore, New York, were studied to assess the impact upon student achievement of a program in cooperative learning applied to mathematics, reading, and writing. Twenty-four third- fourth- and fifth-grade teachers and their classrooms participated. Effects of the program on students' attitudes, self-esteem, and gender and race relations were assessed, and demographic analyses were conducted. Results indicated that cooperative learning in this instance did not prove any more effective than traditional educational strategies in increasing students' achievement, enhancing race and gender relations or improving students' attitudes toward school. The complexity of the experimental design, its compressed nature, and the effectiveness of the existing traditional curriculum may explain this result.

ED 291 075
Stevens, Robert J., and others. **Cooperative Reading and Composition: Two Field Experiments.** 1987. 54 p.
Two studies evaluated a comprehensive cooperative learning approach to elementary reading and writing instruction, Cooperative Integrated Reading and Composition (CIRC). Subjects in the first study, 461 subur-

ban third- and fourth-grade students, were divided into experimental and control groups, with experimental CIRC groups working in heterogenous learning teams for all reading, language arts, and writing activities. Students worked extensively with partners in reading classes and used a process approach in writing and language arts. The second study was an extension and replication of the first, where subjects were 450 third- and fourth-grade students from a wider range of ethnic and socio-economic backgrounds than those in the first. Results of both studies show significant effects in favor of the CIRC students on standardized tests.

ED 273 717
Ascher, Carol. **Cooperative Integrated Learning in the Urban Classroom.** Report No. 10. Center for Research on Elementary and Middle School Education. Adapted for ERIC/CUE Digest, Number 30. ERIC Clearinghouse on Urban Education, New York, N.Y. 1986. 5 p.
Cooperative learning methods capitalize on the heterogeneous student bodies of most urban schools. They appear to foster better student achievement than do individualistic methods, to increase cross-ethnic friendships, and to improve students' self-esteem and positive attitudes toward other students and the school. Six currently published cooperative learning techniques are: Student Teams-Achievement Divisions, Teams-Games-Tournament, Teams-Assisted Individualization, Jigsaw I and II, Learning Together, and Group Investigation.

JOURNAL ARTICLES

Conard, Brenda Dorn. **"Cooperative Learning and Prejudice Reduction."** *Social Education*, vol. 52 no. 4 (April-May 1988): 283-86.
This report argues that the strategies and goals of cooperative learning promote good citizenship and the reduction of prejudice. Supporting theories and research reports on a fifth grade's ten-week cooperative learning experience are reviewed.

Bernagozzi, Tom. **"The New Cooperative Learning and One Teacher's Approach."** *Learning*, vol. 16 no. 6 (February 1988): 38-43.
A teacher describes how he modified a cooperative learning approach featuring heterogeneous grouping for his elementary school class, covering such topics as setting up teams, teaching a lesson, managing the evaluation and scoring system, and the approach's pitfalls and benefits. A list of resources and suggestions is presented.

Uttero, Debbra A. **"Activating Comprehension through Cooperative Learning."** *Reading Teacher*, vol. 41 no. 4 (January 1988): 390-95.
A teaching model designed to develop reading comprehension and learning strategies through cooperative learning is described. Also discussed are benefits to students and suggestions for implementing the model.

Widaman, Keith F., and Spencer Kagan. **"Cooperativeness and Achievement: Interaction of Student Cooperativeness with Cooperative versus Competitive Classroom Organization."** *Journal of School Psychology*, vol 25, no. 4 (Winter 1987): 355-65.
A study investigated differential impact of various cooperative learning methods and the interaction of student characteristics with learning methods in 864 elementary school students and 32 student teachers. Results revealed substantial differences in effects of cooperative techniques. Cooperative-competitive social orientation and ethnic status interacted with classroom structure to determine achievement gains.

Slavin, Robert E. **"Cooperative Learning: Where Behavioral and Humanistic Approaches to Classroom Motivation Meet."** *Elementary School Journal*, vol. 88 no. 1 (Sept. 1987): 29-37.
States that the combination of group rewards (based on group members' individual learning) and peer interaction on learning tasks is necessary to produce learning gains characteristic of effective cooperative learning methods. Research on group contingencies and cooperative learning in the elementary school classroom is also discussed.

This resource list was prepared by Sue Ann Kendall.
The ERIC Documents (EDs) listed above can be read on microfiche in many libraries and information centers or ordered in paper copy or microfiche from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, VA 22304. For complete information on how to order, call EDRS at (800) 227-3742 or consult the most recent issue of ERIC's monthly journal, *Resources in Education (RIE)*. *RIE* contains abstracts and indexes for ERIC Documents. *Current Index to Journals in Education (CIJE)* provides annotations and indexes for journal articles, which can be read in the periodicals in which they originally appeared. Requests for infomation about ERIC microfiche collections may be directed to: **ERIC Clearinghouse on Elementary and Early Childhood Education, 805 W. Pennsylvania Ave., Urbana, IL 61801, (217) 333-1386**.

Classroom and Group Interaction

ERIC DOCUMENTS

ED 296 792
Kalkowski, Page
Communication in Cooperative Learning Groups. (1988). 18p. Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 5-9, 1988).
Explored are aspects of the hypothesis that communication in cooperative learning groups mediates effects of cooperative learning. The seven categories of communication identified are: (1) social/emotional; (2) procedural supply; (3) information supply; (4) noncategorizable; (5) information request; (6) procedural demand; and (7) procedural request. Discussion focuses on social and emotional communication, supply and demand, informational versus procedural communication, and communication between student and teacher.

ED 290 296
Phelps, Brady, and others
A Review of Procedures and Issues in Preschool Peer Tutoring and Buddy Systems. (1987). 25p. In Striefel and others, **Grouping Handicapped and Non-Handicapped Children in Mainstream Settings. The Functional Mainstreaming for Success Project. Final Report-Part 3**; see ED 290 286. Focusing on the instructional mainstreaming of handicapped children in community settings, this paper discusses what a peer tutor or buddy is; reasons for using them and ways to use them; the tutor-tutee relationship; and selection and training of tutors and buddies. The use of a child's peers in learning contexts is seen as a way to supplement the time a teacher can spend with any one child and a way to teach social knowledge and develop friendship skills that cannot be taught by an adult teacher.

ED 288 222
Chang, Gen Ling; Wells, Gordon
The Literate Potential of Collaborative Talk. (1987). 29p. Paper presented at the Meeting of the International Oracy Convention (Norwich, Norfolk, England, March 30-April 3, 1987).
This paper introduces the notion of collaborative talk by describing a classroom setting and providing an excerpt of two children working and planning together. The role of talk in active learning and talk's facilitative effects on cognitive development and independent learning are also considered. Collaborative talk is viewed as enabling and empowering children's learning. Teachers are urged to help students without overpowering their efforts. The paper also discusses characteristics of collaborative talk and illustrates the workings of collaborative talk with excerpts of talk from a third and fourth grade classroom. A discussion of the attainment of literate thinking through talk notes the connection between literate talk and literate reading and writing.

ED 282 641
Krappmann, Lothar; Oswald, Hans
Negotiation Strategies in Peer Conflicts: A Follow-up Study in Natural Settings. (1987). 37p. Paper presented at the Biennial Meeting of the Society for Research in Child Development (Baltimore, MD, April 23-26, 1987).
Observation of the classroom and playground interaction of 34 elementary school students in grades 4 and 6 revealed three patterns of negotiation: coercion and manipulation, offer and reply, and reasoning. Pattern use varied according to age, with the pattern of reasoning seldom observed at either age.

ED 280 616
Bellows, B.P.
What Makes a Team? The Composition of Small Groups for C.A.I. (1987). 15p.
This study examined the relation of ability and sex to students' achievement on a social studies task and students' interaction in small groups. Subjects were 66 second grade students in 3 different classrooms. Students used a computer to learn map skills. A total of 28 boys and 27 girls were assigned to dyadic or triadic treatment conditions. Results indicated that students in mixed-ability triads had significantly greater gains in achievement than did students in uniform-ability groups. Boys and girls did equally well on the task. High-ability students were dominant in group interaction. Subjects most frequently gave and received terminal responses. Explanations were rarely given. It is concluded that ability has a bearing on student interaction and achievement in small group computer-learning situations.

ED 275 442
Bullock, Janis
Encouraging the Development of Social Competence in Young Children. (1986). 11p.
This paper argues that teachers can help children develop social competence by understanding differences between rejected, neglected, and popular children; by knowing how to assess social competence; and by using techniques which aid in the development of children's social skills. Several assessment and teaching methods teachers can use in the classroom are indicated.

JOURNAL ARTICLES

Hatch, J. Amos **"Peer Interaction and the Development of Social Competence."** *Child Study Journal*, vol. 17 no. 3 (1987): 169-83.
Classroom research related to child-to-child interaction and its relationship to the development of social competence in young children is examined. Relevant qualitative and quantitative research are discussed and summarized. A definition of social competence is offered, and implications of the research for classroom teachers are suggested.

Katz, Lilian **"The Disposition to Learn."** *Principal*, vol. 67 no. 5 (May 1988): 14-17.
This articles probes the ways in which children's disposition to learn can be fettered by such means as reinforcing learned stupidity and using rewards that suppress interest. Curriculum strategies for engaging young minds, such as using the school bus as a teaching tool, are suggested.

La Freniere, Peter J.; Charlesworth, William R. **"Effects of Friendship and Dominance Status on Preschoolers' Resource Utilization in a Cooperative/Competetive Situation."** *International Journal of Behaviorial Development*, vol 10, no. 3 (September 1987): 345-58.
This study investigated the influence of dominance and friendship on behavior in a cooperative/competitive problem-solving situation among preschool peers. The mixture of quasi-agonistic and opportunistic behaviors led to high resource use. Agonisitic behaviors were infrequent and unrelated to resource use.

Madden, Lowell. **"Cooperative Learning Strategies in Elementary School."** *Illinois School Research and Development*, vol. 24 no. 2 (Winter 1988): 41-46.
Encouraging children to act cooperatively instead of competitively can make learning a positive experience for a majority of students. Activities which encourage this shift are suggested.

Slavin, Robert E. **"Cooperative Learning and Individualized Instruction."** *Arithmetic Teacher*, vol. 35 no. 3 (November 1987): 14-16.
This article describes a teaching approach that applies principles of cooperative learning to an individualized program for learning mathematics in grades 3-6. The program, Team Assisted Individualization, has several elements, including student teams, a placement test, curriculum materials, the team-study method, team scores and recognition, teaching groups, facts tests, and whole class units.

Slavin, Robert E. **"Cooperative Learning and the Cooperative School."** *Educational Leadership*, vol. 45, no. 3 (November 1987): 7-13.
This article describes the elements of two comprehensive cooperative methods and proposes a model of a cooperative elementary school. Cooperative learning is said to focus group activity on preparing all members to succeed on individual assessments. Research findings show significantly greater achievement for the cooperatively taught class.

Uttero, Debbra A. **"Activating Comprehension Through Cooperative Learning."** *Reading Teacher*, vol. 41 no. 4 (January 1988): 390-95.
This article describes a teaching model designed to develop reading comprehension and learning strategies through cooperative learning. Benefits to students are discussed. Suggestions for implementing the model are included.

This resource list was prepared by Ron Hutchison.
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Part III. Reprint of an ERIC Search on Cooperative Learning in Elementary and Middle Schools

HOW TO READ AN ERIC COMPUTER SEARCH REPRINT

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ABBREVIATIONS USED IN THIS SEARCH PRINTOUT

The following abbreviations appear on the resumes in this computer search:

AN	ERIC accession number
AU	Author/s
IN	Author affiliation or name of institution where work was performed
TI	Title
SO	Journal title, volume, issue, number, date pages (CIJE only)
LG	Language
GS	Geographic Source (RIE only)
SN	Sponsoring agency name and code (RIE only)
PA	Program area code (RIE only)
IS	RIE or CIJE issue number
NO	Numbers: grant, contract report, project (RIE only)
CH	Clearinghouse code
GV	Government status (RIE only)
PR	EDRS price codes (RIE only) RIE not available PR=NA
PT	Publication type code (RIE only)
AV	Availability statement
LV	Level of availability (RIE only)
NT	Descriptive notes
YR	Year of publication or generated entry date
MJ	Major subject descriptors
MN	Minor subject descriptors
ID	Identifiers
AB	Abstract

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1 COOPERATIVE-LEARNING
RESULT 33

2 ELEMENTARY-EDUCATION OR ELEMENTARY-SCHOOL-STUDENTS OR PRIMARY-EDUCATION OR INTERMEDIATE-GRADES OR MIDDLE-SCHOOLS OR KINDERGARTEN.DE.
RESULT 61140

3 1 AND 2
RESULT 6

4 COOPERATIVE ADJ LEARNING
RESULT 383

5 4 AND 2
RESULT 106

6 3 OR 5
RESULT 106

7 6 AND ED.AN.
RESULT 41

8 7 YR GT 86
RESULT 17

9 7 YR GT 85
RESULT 25

10 PRESERVICE-EDUCATION OR INSERVICE-EDUCATION OR INSERVICE-TEACHER-EDUCATION OR TEACHER-EDUCATION OR RESIDENTIAL-CARE OR FOREIGN-COUNTRIES
RESULT 62723

11 6 NOT 10
RESULT 98

12 11 AND ED.AN.
RESULT 37

13 12 YR GT 85
RESULT 22

14 PRESERVICE-TEACHER-EDUCATION
RESULT 6665

15 11 NOT 14
RESULT 96

16 15 AND ED.AN.
RESULT 35

17 16 YR GT 85
RESULT 20

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AN ED303553.
AU Lake, Sara.
IN California League Middle Schools, Sacramento, CA. BBB26449.
TI Equal Access to Education. Alternatives to Tracking and Ability Grouping. Practitioner's Monograph #2.
LG EN.
GS U.S. California.
IS RIEJUN89.
CH UD026638.
PR EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
PT 141; 070; 120.
AV California League of Middle Schools, 1107 Ninth Street, Suite 150, Sacramento, CA 95814 ($4.25).
LV 2.
NT 19p.
YR 88.
MJ Ability-Grouping. Cooperative-Learning. Equal-Education. Heterogeneous-Grouping. Middle-Schools. Track-System-Education.
MN Classroom-Techniques. Elementary-Secondary-Education. Grouping-Instructional-Purposes. Minority-Group-Children. School-Resegregation.
ID IDENTIFIERS: Middle School Students. TARGET AUDIENCE: Practitioners.
AB Cooperative learning and heterogeneous ability grouping meet many of the goals of middle grade education while avoiding the discriminatory effects of tracking and homogeneous grouping. Poor and minority students are overrepresented in lower track classes, and are, therefore, more likely to be denied equal access to education. Arguments in favor of tracking and ability grouping include the following: (1) students learn better; (2) slower students do not have to compete with their brighter peers; (3) placement is accurate and fair; and (4) teachers find heterogeneous groups are easier to teach. Arguments against tracking and ability grouping include the following: (1) no group of students has been found to benefit consistently; (2) isolation from better students does not help the academic self-concept of those placed in lower ability groups or tracks; (3) standardized placement tests are not objective since they are designed to serve the needs of the tracking system; and (4) the more experience that teachers gain with heterogeneous grouping, the better they like it. Tracking and ability grouping have also been found to be a major force for resegregation of supposedly integrated schools. Cooperative learning is the most frequently recommended model for mixed ability grouping. Implementation of heterogeneously grouped classroom techniques requires inservice training for teachers and administrative support. Thirty-four footnotes are included. (FMW).

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AN ED302866.
AU Lyman, Lawrence; Foyle, Harvey C.
TI Cooperative Learning in the Middle School.
LG EN.
GS U.S. Kansas.
IS RIEJUN89.
CH CS506517.
PR EDRS Price - MF01/PC01 Plus Postage.

PT 150; 052.
LV 1.
NT 15p.; Paper presented at the Annual Kansas Symposium for Middle Level Education (12th, Emporia, KS, February 24, 1989).
YR 89.
MJ Cooperative-Learning. Group-Activities.
Interpersonal-Communication. Learning-Strategies. Middle-Schools.
MN Class-Activities. Intermediate-Grades. Junior-High-Schools.
Small-Group-Instruction. Teaching-Methods.
ID IDENTIFIERS: Small Group Communication.
AB Cooperative learning is a teaching strategy involving students in small group learning activities that promote positive interaction. Cooperative learning is one of the most thoroughly researched strategies available to educators. Studies have consistently found that cooperative learning promotes increased academic achievement and can be implemented relatively easily and at reasonable cost. Improved behavior, increased liking of class, and better attendance are also benefits of cooperative learning strategies. Cooperative learning should be of particular interest to teachers of middle school children because, in addition to the highly desired outcomes described, cooperative learning enhances student motivation by providing peer support for students. It also encourages group processes and positive social and academic interaction among students, and rewards successful group participation. By encouraging positive student interaction and building group skills, teachers can positively increase the academic success and self-esteem of their students. (Four learning activities, 23 references, and 12 resources for activities which promote cooperation are attached.) (RAE).

****

AN ED302250.
AU McNeely, Sandra.
TI The Effectiveness of Teaching Research Skills in Library Instructional Centers through Cooperative Learning Groups: A Research Report.
LG EN.
GS U.S. Texas.
IS RIEMAY89.
CH IR052587.
PR EDRS Price - MF01/PC03 Plus Postage.
PT 042; 143.
LV 1.
NT 65p.; Requirements for Master's Seminar, Prairie View A&M University.
YR 88.
MJ Instructional-Effectiveness. Intermode-Differences.
Learning-Centers-Classroom. Library-Instruction. Teaching-Methods.
MN Comparative-Analysis. Conventional-Instruction. Grade-4.
Intermediate-Grades. Small-Group-Instruction.
AB This study investigated the effectiveness of a library program utilizing learning centers combined with cooperative learning groups to teach research skills. Thirty-four fourth-grade students were randomly assigned to one of two groups. Students in Group A, the experimental group, were taught research skills in the library by progressing through six instructional learning centers in small cooperative groups over a 6-week period. The centers concentrated on

the acquisition of specific research skills and were attentive to levels of ability and learning styles. Group B, the control group, received traditional classroom instruction on research skills. All subjects were then administered the SRA Achievement Test, and an analysis of the test scores on the reference materials portion indicated that Group A scored significantly higher than Group B. The results suggest that a library instructional center which provides multiple techniques and methods to meet various learning styles and levels of ability to teach research skills did have an impact on student achievement. The appendix includes a description of the learning centers and activities. (20 references) (Author/MES).

****

AN ED298324.
AU Bhaerman, Robert D.; Kopp, Kathleen A.
IN Ohio State Univ., Columbus. National Center for Research in Vocational Education. BBB15260.
TI The School's Choice: Guidelines for Dropout Prevention at the Middle and Junior High School. Dropout Prevention Series.
LG EN.
GS U.S. Ohio.
SN Office of Vocational and Adult Education (ED), Washington, DC. EDD00013.
IS RIEFEB89.
NO GN: G008620030.
CH CE050889.
PR EDRS Price - MF01/PC07 Plus Postage.
PT 055.
AV National Center Publications, National Center for Research in Vocational Education, 1960 Kenny Road, Columbus, OH 43210-1090 (Order No. SP700DP02--$13.25).
LV 1.
NT 164p.; For other guides in this series, see CE 050 879-888.
YR 88.
MJ Change-Strategies. Dropout-Prevention. Dropout-Programs.
Program-Development. Role-of-Education.
MN Career-Education. Dropouts. Educational-Change. Guidelines.
Helping-Relationship. High-Risk-Students. Intervention.
Junior-High-Schools. Middle-Schools. Potential-Dropouts.
Program-Implementation. Secondary-Education. Vocational-Education.
ID TARGET AUDIENCE: Administrators. Teachers. Practitioners.
AB This guidebook presents a variety of dropout prevention strategies and is intended to help readers determine which strategies are best suited for a particular classroom, school, or district. The primary audience is school personnel who work with young adolescents. It begins by addressing major dropout issues, primary research findings, and possible solutions. Three additional concepts are then presented: bonding, basic skills, and youth advocacy. These topics relative to bonding are explored: classroom and school climate, various school policies (attendance and truancy, suspension, nonpromotion and retention, discipline, tracking and testing), and the roles of parents, families, and the community. These basic skills topics are then discussed: curriculum concerns, instructional issues, teaching/learning styles, career awareness and educational planning, cooperative learning, peer tutoring, and the role of vocational education. Specific issues featured in the discussion of

youth advocacy are adolescent behavior, expectations of youth, early identification of potential dropouts, building self-esteem, guidance and counseling, and accommodation. The monograph concludes with a discussion of planning and evaluation techniques, staffing patterns and staff development, the role of administrators, and overview of choices that teachers, counselors, and principals should consider in developing dropout prevention strategies. A list of 145 references concludes the guide. (YLB).

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AN ED297262.
AU Madden, Nancy A.; And Others.
IN Center for Research on Elementary and Middle Schools, Baltimore, MD. BBB24803.
TI A Comprehensive Cooperative Learning Approach to Elementary Reading and Writing: Effects on Student Achievement. Report No. 2.
LG EN..
GS U.S. Maryland..
SN Office of Educational Research and Improvement (ED), Washington, DC. EDD00036.
IS RIEJAN89.
NO GN: OERI-G-86-0006.
CH CS008663.
PR EDRS Price - MF01/PC02 Plus Postage.
PT 143.
LV 1.
NT 31p.
YR 86.
MJ Classroom-Techniques. Integrated-Activities. Language-Arts. Reading-Instruction. Teaching-Methods. Writing-Instruction.
MN Class-Activities. Elementary-Education. Program-Evaluation. Reading-Writing-Relationship.
ID IDENTIFIERS: Cooperative Integrated Reading Composition Program. Whole Language Approach. TARGET AUDIENCE: Teachers. Practitioners.
AB To determine whether a comprehensive, cooperative learning approach can be used effectively in elementary reading and writing instruction, a study evaluated the Cooperative Integrated Reading and Composition (CIRC) program. Experimental subjects, 11 third- and fourth-grade CIRC classes, worked in heterogeneous learning teams for all reading, language arts, and writing activities over a 12-week period. The control group consisted of 10 regular third- and fourth-grade classes. Overall, results supported the effectiveness of the CIRC program on all target objectives except language mechanics and writing ideas. Findings ascribed the effects on (1) spelling to the partner spelling practice; (2) writing organization and language expression to the integrated language arts/writing component; and (3) reading vocabulary and reading comprehension to basal-related activities such as the teaching of story grammars, partner reading, and mastery-oriented story comprehension practice. Thus, analyses showed that student achievement in reading and writing can be increased if state-of-the-art principles of classroom organization, motivation, and instruction are used in the context of a cooperative learning program. Results also indicated that standardized measures of skills such as reading comprehension and reading vocabulary can be affected by treatments that simultaneously

address student motivation, classroom management, curriculum, and metacognitive activities. (JD).

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AN ED297261.
AU Madden, Nancy A.; And Others.
IN Center for Research on Elementary and Middle Schools, Baltimore, MD. BBB24803.
TI Reading Instruction in the Mainstream: A Cooperative Learning Approach. Report No. 5.
LG EN..
GS U.S. Maryland..
SN Office of Educational Research and Improvement (ED), Washington, DC. EDD00036.
IS RIEJAN89.
NO GN: G-83-00012; OERI-G-86-0006.
CH CS008662.
PR EDRS Price - MF01/PC03 Plus Postage.
PT 143.
LV 1.
NT 53p.
YR 86.
MJ Mainstreaming. Program-Evaluation. Reading-Instruction. Teaching-Methods. Writing-Instruction.
MN Cooperative-Learning. Elementary-Education. Integrated-Activities. Learning-Activities. Learning-Disabilities. Reading-Research. Reading-Skills. Reading-Writing-Relationship. Remedial-Reading. Special-Programs. Writing-Research. Writing-Skills.
ID IDENTIFIERS: Cooperative Integrated Reading Composition Program.
AB The Cooperative Integrated Reading and Composition Program (CIRC), which combines individualized instruction with cooperative learning, was evaluated in two studies. In the first study, 461 third and fourth graders were pulled out of their reading classes for part or all of the reading period over a 12-week period and CIRC was implemented. In the second study, conducted over 24 weeks, 450 third and fourth graders were pulled out of their scheduled resource and remedial classes and CIRC was implemented at times other than normal language arts periods. Results of both investigations supported the effectiveness of CIRC on: (1) students' reading and writing achievement; (2) vocabulary; (3) the major components of reading proficiency--decoding, comprehension, and vocabulary; (4) language expression measures, both on standardized tests and writing samples; and (5) informal reading inventories for partner reading and partner word practice activities. However, results differed with respect to mainstreamed learning disabled students. The effects on reading and spelling scores were not statistically significant in the first study, but the second study indicated substantial effects on reading vocabulary and comprehension. Moreover, the second study revealed substantial positive results of CIRC on reading comprehension, language mechanics, language expression, and oral reading, whereas the first study found no effects. (JD).

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AN ED297198.
AU Raffini, James P.

IN National Education Association, Washington, D.C. FGK56700.
TI Student Apathy: The Protection of Self-Worth. What Research Says to the Teacher.
LG EN..
GS U.S. District of Columbia..
IS RIEJAN89.
NO RN: ISBN-0-8106-1080-9.
CH CG020971.
PR EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
PT 140.
AV National Education Association Professional Library, P.O. Box 509, West Haven, CT 06516 ($2.95).
LV 2.
NT 36p.
YR 88.
MJ Apathy. Educational-Practices. Elementary-Secondary-Education. Self-Esteem.
MN Academic-Achievement. Elementary-School-Students. Goal-Orientation. Secondary-School-Students. Self-Concept.
AB Some educational practices have contributed to the apathy of students. These include a perceptual view of behavior, the view that self-worth equals achievement, norm-referenced evaluation, and success as ability and effort. Four strategies which have the potential for allowing students to experience success from reasonable levels of effort include: (1) individual goal-setting structures that allow students to define their own criteria for success; (2) outcome-based instruction and evaluation which make it possible for slower students to experience success without having to compete with faster students; (3) attribution retraining which can help apathetic students view failure as a lack of effort rather than a lack of ability; and (4) cooperative learning activities which help students realize that personal effort can contribute to group as well as individual goals. Educators must confront the discrepancies between the actual and stated goals of education. Students have the power to choose how much effort to expend on any task. If the goal is to differentiate students according to their ability, then slower students will choose to reject school by avoiding effort. For those students who are forced to choose between rejecting schooling or rejecting their sense of self-worth, time is short. (ABL).

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AN ED296792.
AU Kalkowski, Page.
TI Communication in Cooperative Learning Groups.
LG EN..
GS U.S. California..
IS RIEDEC88.
CH PS017444.
PR EDRS Price - MF01/PC01 Plus Postage.
PT 143; 150.
LV 1.
NT 18p.; Document contains light, broken type. Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 5-9, 1988).
YR 88.
MJ Classification. Classroom-Communication.

Elementary-School-Students. Group-Dynamics. Grouping-Instructional-Purposes.
MN Case-Studies. Classroom-Research. Classroom-Techniques. Elementary-Education. Nonverbal-Communication. Research-Needs. Verbal-Communication.
ID IDENTIFIERS: Cooperative Learning.
AB This study explores aspects of the hypothesis that communication in cooperative learning groups mediates effects of cooperative learning. The study develops a taxonomy of the cooperative communications of groups of predominantly Anglo and Hispanic elementary school students attending a public school where teachers were being trained to implement the cooperative learning methodologies of "Finding Out/Descubrimiento" (FO/D) and "Learning Together" (LT). Cooperative group size ranged from two to six students. A total of 29 third- through sixth-grade groups in 7 different classes were observed. Three of the seven classes were engaged in FO/D science lessons; the other four followed the LT format. During each observation, 5 minutes were spent recording communication in each group, and 5 minutes were spent filling out a group evaluation form. Seven categories of communication were identified: (1) social/emotional; (2) procedural supply; (3) information supply; (4) noncategorizable; (5) information request; (6) procedural demand; and (7) procedural request. Discussion of findings focuses on social/emotional communication, supply and demand, informational versus procedural communication, and teacher/student communication. Extensive concluding discussion explores six questions derived from the hypothesis that different types of individual contributions have different values in the interdependent learning situation. (RH).

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AN ED296286.
AU Butler, Jocelyn A.
IN Northwest Regional Educational Lab, Portland, Oreg. RIK65325.
TI Cooperative Learning: Central Elementary School. Effective Practices in Place: Snapshot No. 7. School Improvement Research Series II.
LG EN..
GS U.S. Oregon..
SN Office of Educational Research and Improvement (ED), Washington, DC. EDD00036.
IS RIEDEC88.
NO CN: 400-86-0006.
CH CS009192.
PR EDRS Price - MF01/PC01 Plus Postage.
PT 142; 052.
LV 1.
NT 6p.
YR 88.
MJ Experimental-Schools. Laboratory-Schools.
MN Case-Studies. Classroom-Research. Elementary-Education. Music-Activities. Music-Education. Problem-Solving. Program-Descriptions. Skill-Development. Teaching-Methods.
ID IDENTIFIERS: Cooperative Learning. Snohomish School District 201 WA. Western Washington University.
AB This report examines cooperative learning in the Central Elementary School, a special demonstration school in a cooperative project

between the Snohomish, Washington School District and Western Washington State University. After reporting the research findings on cooperative learning approaches identified in "Effective Schooling Practices: A Research Synthesis," the report describes the Central Elementary School and its teacher training in the cooperative learning approach. To illustrate the Central approach, three classroom situations are presented: (1) a sixth grade music lesson; (2) a cooperative learning exercise to practice using pictographs in sentences for a mixed group of first and second graders; and (3) a cooperative learning lesson to increase questioning and problem-solving skills in a class of advanced placement students from grades four, five, and six. (MM)

****

AN ED295910.
AU Slavin, Robert E.
IN National Education Association, Washington, D.C. FGK56700.
TI Student Team Learning: An Overview and Practical Guide. Second Edition.
LG EN.
GS U.S. District of Columbia.
IS RIENOV88.
NO RN: ISBN-0-8106-1836-2.
CH SP030253.
PR EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
PT 052.
AV NEA Professional Library, P.O. Box 509, West Haven, CT 06516 ($9.95).
LV 2.
NT 84p.
YR 88.
MJ Academic-Achievement. Educational-Games. Learning-Activities. Learning-Strategies. Teamwork.
MN Elementary-Education. Instructional-Materials. Peer-Relationship. Teaching-Methods.
ID IDENTIFIERS: Cooperative Learning.
AB This manual provides descriptions of five cooperative learning methods: (1) Student Teams-Achievement Divisions (STAD); (2) Teams-Games-Tournaments (TGT); (3) Jigsaw; (4) Team Accelerated Instruction (TAI); and (5) Cooperative Integrated Reading and Composition (CIRC). For each of these methods, an overview offers a description of the procedures followed, how to prepare for it, how to start it, and a schedule of activities involved. Similarities and differences between the methods are discussed and research evidence on the effectiveness of various kinds of team learning is considered. The appendices contain information on scoring methods for different sizes of teams, instructions for making worksheets for team activities, and samples of a Jigsaw Unit and record forms. (JD).

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AN ED295647.
AU Hooper, Simon; Hannafin, Michael J.
TI Cooperative Learning at the Computer: Ability Based Strategies for Implementation.

LG EN.
GS U.S. Pennsylvania.
IS RIENOV88.
CH IR013357.
PR EDRS Price - MF01/PC01 Plus Postage.
PT 143; 150.
LV 1.
NT 16p.; In: Proceedings of Selected Research Papers presented at the Annual Meeting of the Association for Educational Communications and Technology (New Orleans, LA, January 14-19, 1988). For the complete proceedings, see IR 013 331.
YR 88.
MJ Computer-Assisted-Instruction. Group-Dynamics. Grouping-Instructional-Purposes. Intermode-Differences. Low-Achievement.
MN Academic-Achievement. Analysis-of-Variance. Aptitude-Treatment-Interaction. Elementary-Education. Elementary-School-Students. Group-Instruction.
ID IDENTIFIERS: Cooperative Learning.
AB This study compared the achievement of low and high ability eighth grade students working cooperatively during computer-based instruction. Students were grouped either homogeneously or heterogeneously on ability, and received identical instruction on a fictitious rule-based arithmetic number system. No significant differences in achievement were found between the two grouping methods. However, the achievement of low ability students in the mixed ability treatment improved substantially without an accompanying significant reduction in the achievement of the high ability students. The results indicate that designers and teachers have little to risk in terms of achievement, but potentially much to gain in socialization and interaction, by cooperative heterogeneous grouping during computer-based instruction. The text is supplemented by tables, figures, and 23 references. (EW).

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AN ED295503.
AU Little Soldier, Lee.
TI Sociocultural Context and Language Learning of Native American Pupils.
LG EN.
GS U.S. Texas.
IS RIENOV88.
CH FL017456.
PR EDRS Price - MF01/PC01 Plus Postage.
PT 143; 150.
LV 1.
NT 15p.; Paper presented at the Annual Meeting of the National Association for Bilingual Education (17th, Houston, TX, April 27-May 1, 1988).
YR 88.
MJ American-Indians. Bilingualism. Classroom-Environment. Language-Acquisition. Sociocultural-Patterns. Young-Children.
MN Classroom-Communication. Cooperation. Cultural-Context. Instructional-Materials. Primary-Education. Second-Language-Learning. Teacher-Student-Relationship.
ID IDENTIFIERS: New Mexico.

AB A study examined the quantity and quality of language produced by kindergarten and early primary Native American pupils in relation to selected factors in the classroom context in which the language was produced. Observations of about 50 classrooms were conducted in schools serving predominantly Native American pupils on and off reservations in New Mexico. A rating sheet was used to evaluated the sociocultural environment of the classrooms. Results showed that informal classroom organization with flexible arrangement of furniture and emphasis on group work enhanced language learning. Other factors relating positively to language learning were situations in which the locus of control was shared by teachers and pupils, where there was an emphasis on cooperative learning and dialogue patterns involving pupils to a great degree, and in which culturally relevant materials or activities were used. (MSE).

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AN ED295105.
IN Kern County Superintendent of Schools, Bakersfield, Calif. CIQ03553.
TI ALERT: A Substance Abuse Prevention Curriculum for the Intermediate Grades (Grades 4, 5, and 6).
LG EN..
GS U.S. California..
IS RIENOV88.
CH CG020845.
PR EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
PT 052.
AV Kern County Superintendent of Schools, Attn: Warehouse, 5801 Sundale Ave. Bakersfield, CA 93309 ($250.00 plus shipping and handling).
LV 2.
NT 321p.
YR 87.
MJ Drug-Education. Intermediate-Grades. Substance-Abuse.
MN Cognitive-Development. Decision-Making. Elementary-School-Students. Health-Education. Peer-Influence. Teaching-Guides.
ID TARGET AUDIENCE: Teachers. Practitioners.
AB This document presents ALERT, a substance abuse primary prevention program for use with students in grades four, five, and six. The ALERT program is described as promoting higher order thinking skills since each lesson is correlated with Bloom's Taxonomy of Educational Objectives; as providing opportunities for cooperative learning and for significant dialogue between and among students and their teachers; as being "teacher friendly," containing detailed, step-by-step lesson plans, transparencies, student worksheets, and enrichment and evaluation plans; and as requiring no additional class time since the lessons in the curriculum can be integrated into science, health, reading, language arts, social studies, and physical education classes. Included are the five units (20 lessons) of the ALERT program: (1) Health and You; (2) Drugs That Can Help Us; (3) Drugs That Can Harm Us; (4) Recognizing and Resisting Pressures to Use Drugs; and (5) Making Responsible Decisions. Each of the 20 lessons contains a lesson overview; a set of lesson objectives; and sections on time required, materials needs, vocabulary list, teaching procedures, enrichment options, evaluation, and direct instruction. Additional materials and resources are appended. Ready-to-use transparencies are included, as are the transparency masters. (NB).

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AN ED294926.
AU Glassman, Phyllis.
TI A Study of Cooperative Learning in Mathematics, Writing and Reading as Implemented in Third, Fourth and Fifth Grade Classes: A Focus upon Achievement, Attitudes and Self-Esteem for Males, Females, Blacks, Hispanics and Anglos.
LG EN..
GS U.S. New York.
IS RIEOCT88.
CH TM011692.
PR EDRS Price - MF01/PC03 Plus Postage.
PT 150; 143.
LV 1.
NT 64p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 5-9, 1988).
YR 88.
MJ Academic-Achievement. Curriculum-Evaluation. Elementary-School-Students. Fused-Curriculum. Student-Attitudes.
MN Anglo-Americans. Black-Students. Classroom-Research. Elementary-Education. Grade-3. Grade-4. Grade-5. Hispanic-Americans. Mathematics-Curriculum. Racial-Relations. Reading-Instruction. Self-Esteem. Sex-Differences. Writing-Instruction.
ID IDENTIFIERS: Cooperative Learning.
AB Two intermediate elementary schools in the Bay Shore District of Bay Shore, New York, were studied to assess the impact upon student achievement of a program in cooperative learning applied to mathematics, reading, and writing. The schools include the Gardiner Manor and South Country Schools; in the 1986-87 school year, 510 students attended the former, and 449 attended the latter. Twenty-four third-, fourth-, and fifth-grade teachers and their classrooms participated in the study. Assessments were also made to determine the effects of such programming on students' attitudes, self-esteem, and gender and race relations. Demographic analyses were conducted. The study adopted a pre-test/post-test quasi-experimental design. Data collection instruments included the Iowa Tests of Basic Skills, Coopersmith Self-Esteem Inventory, a modified version of "Who Are Your Friends? ", student writing samples, and various attitude inventories. Unlike previous studies, cooperative learning in this instance did not prove to be any more effective than traditional educational strategies in increasing students' achievement, enhancing race and gender relations, or improving youngsters' attitudes toward school. The complexity of the experimental design, its compressed nature, and the effectiveness of the existing traditional curriculum may explain this result. Positive gains found for Hispanic students should be investigated further. A 115-item reference list is presented. (TJH).

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AN ED291075.
AU Stevens, Robert J.; And Others.
IN Center for Research on Elementary and Middle Schools, Baltimore, MD. BBB24803.
TI Cooperative Integrated Reading and Composition: Two Field Experiments. Report No. 10.
LG EN..

GS U.S. Maryland..
SN Office of Educational Research and Improvement (ED), Washington, DC. EDD00036.
IS RIEJUL88.
NO GN: G-83-00012; G-86-0006; NIE-G-86-0113.
CH CS009043.
PR EDRS Price - MF01/PC03 Plus Postage.
PT 143.
LV 1.
NT 54p.
YR 87.
MJ Cooperative-Planning. Language-Skills. Reading-Writing-Relationship. Teamwork.
MN Elementary-Education. Group-Experience. Instructional-Effectiveness. Language-Arts. Reading-Research. Reading-Skills. Writing-Composition. Writing-Research.
ID IDENTIFIERS: Cooperative Learning. Middle School Students.
AB Two studies evaluated a comprehensive cooperative learning approach to elementary reading and writing instruction, called Cooperative Integrated Reading and Composition (CIRC). The subjects in the first study, 461 third- and fourth-grade students in a suburban Maryland school district, were divided into experimental and control groups, with the experimental CIRC groups working in heterogeneous learning teams for all reading, language arts and writing activities. In reading, CIRC students worked with partners during follow-up times on partner reading, decoding, story structure, prediction, and story summary activities related to the basal stories. In writing and language arts, CIRC students used a process approach to writing and peer conferences during planning, revising and editing stages of the process. Subjects in the second study, 450 third- and fourth-grade students were chosen from a wider range of ethnic and socio-economic backgrounds than those in the first, although the second study was an extension and replication of the first. The results of both studies show significant effects in favor of the CIRC students on standardized test measures of reading comprehension, reading vocabulary, language mechanics, language expression and spelling. Also noted were effects favoring CIRC students on writing sample and oral reading measures. (Six tables of data are included, and 51 references are attached.) (NH).

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AN ED288922.
AU Slavin, Robert E.; Madden, Nancy A.
IN Center for Research on Elementary and Middle Schools, Baltimore, MD. BBB24803.
TI Effective Classroom Programs for Students at Risk.
LG EN..
GS U.S. Maryland..
SN Office of Educational Research and Improvement (ED), Washington, DC. EDD00036.
IS RIEAPR88.
NO GN: OERI-G-86-0006.
CH UD025895.
PR EDRS Price - MF01/PC02 Plus Postage.
PT 150; 070; 142.
LV 1.

NT 49p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).
YR 87.
MJ Compensatory-Education. Continuous-Progress-Plan. High-Risk-Students. Individualized-Instruction.
MN Elementary-Education. Grouping-Instructional-Purposes. Program-Effectiveness. Remedial-Instruction.
ID IDENTIFIERS: Cooperative Learning. TARGET AUDIENCE: Practitioners.
AB This paper examines research on classroom programs for elementary school students who are at risk for learning problems. The full range of alternative classroom organization models designed to meet the needs of low-achieving or heterogeneous classes is explored in an attempt to discover which type of program is most effective and why. The goal of this study is to determine how the education needs of all students can be met by fundamentally restructuring the regular classroom, as opposed to adding on services outside of the regular classroom. Therefore this review focuses on the specific, comprehensive programs beneficial to the achievement of students who are at risk and that are replicable at other schools. Research demonstrates that effective classroom programs accommodate instruction to individual needs while maximizing direct instruction, and assess student progress frequently through a structured hierarchy of skills. Two categories of programs emerged as particularly effective: continuous progress and cooperative learning. An extensive list of references is included. Descriptions of several types of successful programs are appended. (PS).

****

AN ED288884.
AU Muscella, Deborah.
TI Uncovering Beliefs about Learning: Multimethod, Multitrait Research.
LG EN..
GS U.S. Texas.
IS RIEAPR88.
CH TM870517.
PR EDRS Price - MF01/PC02 Plus Postage.
PT 150; 143.
LV 1.
NT 42p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987). Best copy available.
YR 87.
MJ Attitude-Measures. Learning-Activities. Multitrait-Multimethod-Techniques. Research-Design. School-Attitudes. Student-Attitudes.
MN Beliefs. Cognitive-Dissonance. Cognitive-Style. Hispanic-Americans. Kindergarten-Children. Learning-Theories. Low-Achievement. Low-Income-Groups. Models. Multidimensional-Scaling. Parent-Attitudes. Primary-Education. Student-Participation. Teacher-Student-Relationship. Teaching-Methods. Whites.
ID IDENTIFIERS: INDSCAL Computer Program. TARGET AUDIENCE: Researchers.
AB The central theme of this paper is that multimethod, multitrait research is essential to uncover learning beliefs and learning

structures. The year-long social-ecological study clearly illustrated the efficacy of such a research process. This was a study of the elements of a kindergarten classroom environment and the beliefs that parents, teachers, and children had about school learning. A comparison was made of the beliefs and participation of Hispanic and Anglo children from low and middle income families. A person-environment interaction model provided the conceptual framework and shaped the multi-operational research strategies. Results indicated that parents, teachers, and children had different beliefs about classroom learning events, with parents shaping portions of both children's and teachers' beliefs. All children were preoccupied with rules and procedures for learning activities, especially low achievers. Achievers and low achievers differed markedly in the importance they attributed to learning events. Both low income and low-achieving students preferred cooperative learning activities. The discrepancies between learning beliefs and learning events were greater for Hispanic, low achieving, and low income students. Multiple operations analyses were instrumental in specifying the discordance between beliefs and the classroom teaching-learning structure. (MDE).

****

AN ED273717.
AU Ascher, Carol.
IN ERIC Clearinghouse on Urban Education, New York, N.Y. BBB00899.
TI Cooperative Learning in the Urban Classroom. ERIC/CUE Digest, Number 30.
LG EN.
GS U.S. New York.
SN Office of Educational Research and Improvement (ED), Washington, DC. EDD00036.
IS RIEJAN87.
NO CN: 400-86-0015.
CH UD025088.
PR EDRS Price - MF01/PC01 Plus Postage.
PT 141; 071.
AV ERIC Clearinghouse on Urban Education, Box 40, Teachers College, Columbia University, New York, NY 10027.
LV 1.
NT 5p.
YR 86.
MJ Learning-Strategies. Social-Integration. Teaching-Methods. Teamwork.
MN Academic-Achievement. Elementary-Education. Ethnic-Relations. Group-Activities. Heterogeneous-Grouping. Multicultural-Education. Racial-Relations. Self-Esteem.
ID IDENTIFIERS: Cooperative Learning. ERIC Digests.
AB Cooperative learning methods capitalize on the heterogeneous student bodies of most urban schools. They appear to foster better student achievement than individualistic methods, to increase cross-ethnic friendships, and to improve students' self-esteem and positive attitudes toward other students and the school. Six currently published cooperative learning techniques are: Student Teams-Achievement Divisions, in which students in four-member heterogeneous teams take individual quizzes and receive a team score based on the degree to which each student improved;

Teams-Games-Tournament, in which learning teams compete and individual scores contribute to a team score; Teams-Assisted Individualization, in which teams are rewarded on the basis of math units mastered by all team members; Jigsaw I and II, in which individual students become experts on particular sections of a lesson and proceed to teach their teammates; Learning Together, in which students work in small heterogeneous groups to complete a common worksheet; and Group Investigation, in which groups choose subtopics from a class unit and further break their subtopics into individual tasks to prepare a group report to the class. (ETS).

****

AN ED270738.
AU Brown, Ann L.; Palincsar, Annemarie S.
IN Bolt, Beranek and Newman, Inc. Cambridge, Mass; Illinois Univ. Urbana. Center for the Study of Reading. BBB14200; MGG06460.
TI Guided, Cooperative Learning and Individual Knowledge Acquisition. Technical Report No. 372.
LG EN.
GS U.S. Illinois.
SN Department of Education, Washington, DC; National Inst. of Child Health and Human Development (NIH), Bethesda, Md; National Inst. of Education (ED), Washington, DC. BBB00456; EDD00001; EDN00001.
IS RIENOV86.
NO CN: 400-81-0030. GN: G008400648; HD-05951; HD-06864.
CH CS008490.
PR EDRS Price - MF01/PC05 Plus Postage.
PT 143.
LV 1.
NT 116p.
YR 86.
MJ Learning-Processes. Learning-Strategies. Peer-Teaching. Reading-Instruction. Teaching-Methods.
MN Content-Area-Reading. Educational-Philosophy. Grade-1. Group-Activities. Learning-Theories. Listening-Skills. Peer-Groups. Primary-Education. Reading-Comprehension. Reading-Research. Teacher-Role.
ID IDENTIFIERS: Cooperative Learning. Reciprocal Teaching.
AB Drawing upon Piagetian and Vygotskian developmental theories, philosophical examinations of the nature of argument and explanation, analyses of classroom and Socratic dialogues, and cooperative classroom structures, this paper examines how cooperative learning can influence individual knowledge acquisition. The paper first reviews some of the theoretical claims concerning a variety of group learning procedures and the evidence that supports their efficacy. Claims discussed include the following: (1) group participation aids learning, (2) group settings force learning with understanding and thus produce conceptual changes, and (3) individual thought processes originate in social interaction. The paper then examines a program of guided cooperative learning--reciprocal teaching, which combines expert scaffolding, guided practice in applying simple concrete strategies, and cooperative learning discussions. In particular, the paper explores the impact of the program on the listening and reading comprehension strategies of first grade students. The paper concludes that reciprocal teaching is a successful method of improving both listening and comprehension, and discusses possible

extensions of the techniques to instruction in specific content areas. Fourteen pages of references are also included. (FL).

****

AN ED269164.
AU Martinez, Christine R.
TI Classroom Observations of Three Behavior Management Programs.
LG EN.
GS U.S. California.
IS RIESEP86.
CH PS015824.
PR EDRS Price - MF01/PC01 Plus Postage.
PT 141.
LV 1.
NT 12p.
YR 86.
MJ Classroom-Techniques. Discipline. Elementary-School-Students. Elementary-School-Teachers. Student-Behavior. Teacher-Role.
MN Behavior-Problems. Grade-5. Grade-6. Intermediate-Grades. Learning-Disabilities.
AB Three approaches to classroom management--assertive discipline, cooperative learning, and behavior management/mastery learning theory--are described. Assertive discipline was observed in a fifth-grade class taught by a teacher who would not allow students to interfere with her teaching or another child's learning. The assertive discipline approach is a system of understanding the rules of the class and accepting the consequences related to obeying and disobeying them. Cooperative learning was observed in a sixth-grade class during a lesson on "put-downs". Cooperative lessons involve content, social skills, and processing elements. Within each lesson ground rules were established. The classroom teacher led students through a five-step lesson plan that included an anticipatory set focusing on what "put-downs" are; instruction, including getting information and modeling; guided practice; and closure, including a final check for performance; and independent practice leading students to use "I-messages" instead of "putdowns". Use of behavior management and principles derived from mastery learning theory were observed in classes serving learning disabled students with severe behavior problems. This program stresses rules and consequences for student behavior through consistent and fair awarding of privileges and assignment of consequences. It is concluded that each program discussed can potentially be effective in managing classroom behavior. (RH).

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RESULT 6

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RESULT 383

5 4 AND 2
RESULT 106

6 3 OR 5
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7 6 AND ED.AN.
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8 7 YR GT 86
RESULT 17

9 7 YR GT 85
RESULT 25

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11 6 NOT 10
RESULT 98

12 11 AND ED.AN.
RESULT 37

13 12 YR GT 85
RESULT 22

14 PRESERVICE-TEACHER-EDUCATION
RESULT 6665

15 11 NOT 14
RESULT 96

16 15 AND ED.AN.
RESULT 35

17 16 YR GT 85
RESULT 20

18 15 AND EJ.AN.
RESULT 61

19 18 YR GT 86
RESULT 19

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AN EJ382776.
AU Walters, Julia.
TI Teaching Biological Systems.
SO Journal of Biological Education; v22 n2 p87 Sum 1988. 88.
LG EN..
IS CIJMAY89.
CH SE543503.
PT 080; 052.
YR 88.
MJ Cooperative-Learning. Human-Body. Research-Skills.
Science-Activities. Secondary-School-Science. Teaching-Methods.
MN Biology. Elementary-Secondary-Education. Intermediate-Grades.
Junior-High-Schools. Middle-Schools. Science-Education.
Student-Research.
AB Described is an activity which allows the investigation of human body
systems using textbooks to enhance research skills and providing an
opportunity for collaboration between pupils. Discussed are the
purpose, materials, method, and results of this teaching method.
Reported are some of the advantages of using this activity in
teaching systems. (CW).

****

AN EJ382767.
AU Behounek, Karla J.; And Others.
TI Our Class Has Twenty-five Teachers.
SO Arithmetic Teacher; v36 n4 p10-13 Dec 1988. 88.
LG EN..
IS CIJMAY89.
CH SE543494.
PT 080; 052.
AV UMI.
YR 88.
MJ Cooperative-Learning. Elementary-School-Mathematics.
Grouping-Instructional-Purposes. Learning-Activities.
Mathematics-Instruction. Teaching-Methods.
MN Primary-Education.
AB Cooperative learning situations are described in which children work
in small groups toward a mutual goal. When such groups should be
used are included, with classroom examples. (MNS).

****

AN EJ381781.
AU Madden, Lowell.
TI Improve Reading Attitudes of Poor Readers through Cooperative Reading
Teams.
SO Reading Teacher; v42 n3 p194-99 Dec 1988. 88.

LG EN..
IS CIJMAY89.
CH CS737061.
PT 080; 052.
AV UMI.
YR 88.
MJ Cooperative-Learning. Heterogeneous-Grouping. Reading-Attitudes.
MN Attitude-Change. Content-Area-Reading. Elementary-Education. Reading-Instruction. Remedial-Reading. Teaching-Methods.
ID IDENTIFIERS: Reading Groups. Reading Motivation.
AB Asserts that cooperative reading teams--reading groups composed of students at varied reading levels--motivate poor readers to learn by developing positive feelings about reading. Describes several reading, language, and content area activities for cooperative reading teams. (MM).

****

AN EJ379987.
AU Kirby, Dan; And Others.
TI Beyond Interior Decorating: Using Writing to Make Meaning in the Elementary School.
SO Phi Delta Kappan; v69 n10 p718-24 Jun 1988. 88.
LG EN..
IS CIJAPR89.
CH EA522704.
PT 080; 142; 055.
AV UMI.
YR 88.
MJ Curriculum-Development. Process-Education. Teacher-Attitudes. Teaching-Methods. Writing-Composition.
MN Elementary-Education.
ID IDENTIFIERS: Coaching. Process Models.
AB To take elementary compositions beyond sloganeering and interior decorating, teachers should use many processes to help students render experience and knowledge into writing. A writing curriculum should emphasize student ownership, the translation of experience into text, the primacy of narrative, the importance of context, cooperative learning, and flexible pedagogies. Includes sample writings and 13 references. (MLH).

****

AN EJ371838.
AU Madden, Lowell.
TI Cooperative Learning Strategies in Elementary School.
SO Illinois School Research & Development; v24 n2 p41-46 Win 1988. 88.
LG EN..
IS CIJOCT88.
CH CS735882.
PT 080; 052.
YR 88.
MJ Competition. Cooperation. Group-Dynamics. Student-Attitudes.
MN Classroom-Communication. Discussion-Groups. Elementary-Education. Student-Motivation.
ID IDENTIFIERS: Cooperative Learning. Team Learning Methods.
AB Claims that encouraging children to act cooperatively instead of competitively can make learning a positive experience for the majority of students. Suggests activities which encourage this shift. (JK).

****

AN EJ371829.
TI The Classroom Reading Teacher.
SO Reading Teacher; v41 n4 p483-95 Jan 1988. 88.
LG EN..
IS CIJOCT88.
CH CS735873.
PT 080; 052.
AV UMI.
YR 88.
MJ Language-Acquisition. Reading-Instruction. Reading-Writing-Relationship.
MN Elementary-Education. Integrated-Activities. Language-Experience-Approach. Oral-Language. Readers-Theater. Reading-Comprehension. Teaching-Methods. Writing-Instruction.
AB Describes various activities designed for use in the reading classroom, including (1) cooperative learning activities; (2) reading and writing activities; (3) ways to improve comprehension; and (4) ways to encourage independent reading. (FL).

****

AN EJ371816.
AU Uttero, Debbra A.
TI Activating Comprehension through Cooperative Learning.
SO Reading Teacher; v41 n4 p390-95 Jan 1988. 88.
LG EN..
IS CIJOCT88.
CH CS735860.
PT 080; 052; 120.
AV UMI.
YR 88.
MJ Content-Area-Reading. Learning-Strategies. Reading-Comprehension. Reading-Instruction.
MN Cooperation. Elementary-Education. Models. Reading-Strategies. Teacher-Role. Teaching-Methods.
ID IDENTIFIERS: Cooperative Learning.
AB Describes a teaching model designed to develop reading comprehension and learning strategies through cooperative learning. Discusses benefits to students and offers suggestions for implementing the model. (FL).

****

AN EJ369658.
AU Bernagozzi, Tom.
TI The New Cooperative Learning and One Teacher's Approach.
SO Learning; v16 n6 p38-43 Feb 1988. 88.
LG EN..
IS CIJAUG88.
CH SP517654.
PT 080; 141.

AV UMI.
YR 88.
MJ Heterogeneous-Grouping. Teamwork.
MN Ability-Grouping. Classroom-Techniques. Elementary-Education. Group-Activities.
AB A teacher describes how he modified a cooperative learning approach featuring heterogeneous grouping for his elementary school class, covering setting up teams, teaching a lesson, managing the evaluation/scoring system, and the approach's pitfalls and benefits. A list of resources and suggestions are presented. (CB).

****

AN EJ369624.
AU Conard, Brenda Dorn.
TI Cooperative Learning and Prejudice Reduction.
SO Social Education; v52 n4 p283-86 Apr-May 1988. 88.
LG EN..
IS CIJAUG88.
CH SO517816.
PT 080; 120; 052.
AV UMI.
YR 88.
MJ Bias. Citizenship-Education. Cooperative-Education. Group-Activities. Social-Studies.
MN Elementary-Education. Grade-5. Inquiry. Student-Attitudes.
ID IDENTIFIERS: Prejudice Reduction.
AB Argues that the strategies and goals of cooperative learning promote good citizenship and the reduction of prejudice. Reviews supporting theories and research and reports on a fifth grade's ten-week cooperative learning experience. (JDH).

****

AN EJ367435.
AU Slavin, Robert E.; And Others.
TI Accommodating Student Diversity in Reading and Writing Instruction: A Cooperative Learning Approach.
SO Remedial and Special Education (RASE); v9 n1 p60-66 Jan-Feb 1988. 88.

LG EN..
IS CIJJUL88.
CH EC201902.
PT 080; 141.
AV UMI.
YR 88.
MJ Cooperation. Heterogeneous-Grouping. Homogeneous-Grouping. Integrated-Activities. Reading-Difficulties. Remedial-Reading.
MN English-Instruction. Intermediate-Grades. Language-Arts. Mainstreaming. Peer-Teaching. Reading-Instruction. Teaching-Methods. Writing-Instruction.
ID IDENTIFIERS: Cooperative Learning. TARGET AUDIENCE: Teachers. Practitioners.
AB "Cooperative Integrated Reading and Composition" is a program that successfully teaches reading, writing, and language arts in heterogeneous intermediate classes containing mainstreamed special education and remedial reading students, by combining mixed-ability

cooperative learning teams and same-ability reading groups. (Author/JDD).

****

AN EJ367350.
AU Slavin, Robert E.
TI Cooperative Learning and the Cooperative School.
SO Educational Leadership; v45 n3 p7-13 Nov 1987. 87.
LG EN..
IS CIJJUL88.
CH EA522002.
PT 080; 070.
AV UMI.
YR 87.
MJ Cooperation. Peer-Teaching. Teaching-Methods.
MN Academic-Achievement. Elementary-Education. Goal-Orientation. Teamwork. Tutoring.
ID IDENTIFIERS: Cooperative Integrated Reading and Composition. Cooperative Learning. Team Accelerated Instruction.
AB Cooperative learning focuses group activity on preparing all members to succeed on individual assessments. Research findings show significantly greater achievement for the cooperatively taught class. Describes the elements of two comprehensive cooperative methods and proposes a model of a cooperative elementary school. (MLF).

****

AN EJ367080.
AU Widaman, Keith F.; Kagan, Spencer.
TI Cooperativeness and Achievement: Interaction of Student Cooperativeness with Cooperative versus Competitive Classroom Organization.
SO Journal of School Psychology; v25 n4 p355-65 Win 1987. 87.
LG EN..
IS CIJJUL88.
CH CG533585.
PT 080; 143.
AV UMI.
YR 87.
MJ Classroom-Environment. Cooperation. Elementary-School-Students. Learning-Strategies. Student-Characteristics.
MN Achievement. Classroom-Techniques. Competition. Elementary-Education. Ethnic-Status. Student-Teachers. Teaching-Methods.
AB Investigated differential impact of various cooperative learning methods and the interaction of student characteristics with learning methods in 864 elementary school students and 32 student teachers. Results revealed substantial differences in effects of cooperative techniques. Cooperative-competitive social orientation and ethnic status interacted with classroom structure to determine achievement gains. (Author/NB).

****

AN EJ362722.
AU Slavin, Robert E.
TI Developmental and Motivational Perspectives on Cooperative Learning: A Reconciliation.
SO Child Development; v58 n5 p1161-67 Oct 1987. 87.
LG EN.
IS CIJMAR88.
CH PS515275.
PT 080; 070; 120.
AV UMI.
NT Thematic Issue: Schools and Development.
YR 87.
MJ Motivation-Techniques.
MN Academic-Achievement. Elementary-Education.
ID IDENTIFIERS: Cooperative Learning. Developmental Theory. TARGET AUDIENCE: Researchers. Practitioners.
AB Reviews research on developmental and motivational perspectives on cooperative learning. Presents a theory which reconciles these perspectives and emphasizes the role of group rewards for individual learning in motivating students to provide high-quality assistance to their group-mates. (PCB).

****

AN EJ361646.
AU Slavin, Robert E.
TI Cooperative Learning and Individualized Instruction.
SO Arithmetic Teacher; v35 n3 p14-16 Nov 1987. 87.
LG EN.
IS CIJFEB88.
CH SE541510.
PT 080; 142.
AV UMI.
YR 87.
MJ Elementary-School-Mathematics. Group-Activities. Individual-Instruction. Mathematics-Instruction. Peer-Teaching. Program-Descriptions.
MN Elementary-Education.
ID IDENTIFIERS: Team Assisted Individualization. TARGET AUDIENCE: Teachers. Administrators. Practitioners.
AB Described is a teaching approach that applies principles of cooperative learning to an individualized program for learning mathematics in grades 3-6. The program, Team Assisted Individualization, has several important elements including student teams, a placement test, curriculum materials, the team-study method, team scores and team recognition, teaching groups, facts tests, and whole-class units. (RH).

****

AN EJ360613.
AU Stevens, Robert J.; And Others.
TI Cooperative Integrated Reading and Composition: Two Field Experiments.
SO Reading Research Quarterly; v22 n4 p433-54 Fall 1987. 87.
LG EN.
IS CIJFEB88.

CH CS734819.
PT 080; 143.
AV UMI.
YR 87.
MJ Cooperation. Program-Evaluation. Reading-Instruction. Writing-Instruction.
MN Elementary-Education. Grade-3. Grade-4. Grammar. Heterogeneous-Grouping. Language-Arts. Metacognition. Oral-Reading. Reading-Comprehension. Reading-Improvement. Reading-Research. Reading-Writing-Relationship. Spelling. Vocabulary. Writing-Improvement. Writing-Research.
ID IDENTIFIERS: Collaborative Learning. Cooperative Integrated Reading and Comp (CIRC). Process Approach. Team Learning Materials.
AB Describes two studies conducted to evaluate a comprehensive cooperative learning approach to elementary reading and writing instruction: Cooperative Integrated Reading and Composition (CIRC). Found significant effects in favor of the CIRC students on standardized measures of reading comprehension, vocabulary, grammar, language expression, oral reading, and spelling. (SKC).

****

AN EJ359899.
AU Slavin, Robert E.
TI Cooperative Learning: Where Behavioral and Humanistic Approaches to Classroom Motivation Meet.
SO Elementary School Journal; v88 n1 p29-37 Sep 1987. 87.
LG EN.
IS CIJJAN88.
CH PS515242.
PT 080; 070; 120.
AV UMI.
YR 87.
MJ Academic-Achievement. Elementary-School-Students. Group-Dynamics. Peer-Relationship. Rewards. Student-Motivation.
MN Behavioral-Science-Research. Elementary-Education. Humanistic-Education.
ID IDENTIFIERS: Cooperative Learning. TARGET AUDIENCE: Researchers. Practitioners.
AB States that the combination of group rewards (based on group members' individual learning) and peer interaction on learning tasks is necessary to produce learning gains characteristic of effective cooperative learning methods. Discusses research on group contingencies and cooperative learning in the elementary school classroom. (NH).

****

AN EJ359422.
AU Wilcox, Joy; And Others.
TI Cooperative Learning Groups Aid Integration.
SO Teaching Exceptional Children; v20 n1 p61-63 Fall 1987. 87.
LG EN.
IS CIJJAN88.
CH EC200200.
PT 080; 141.
AV UMI.

YR 87.
MJ Classroom-Techniques. Mainstreaming. Severe-Disabilities.
MN Case-Studies. Cooperation. Group-Activities. Grouping-Instructional-Purposes. Learning-Activities. Primary-Education.
ID TARGET AUDIENCE: Teachers. Practitioners.
AB The article describes how a teacher used cooperative learning groups to aid in the integration of a severely handicapped eight-year-old child into a regular first grade classrooms. The planning stage, the eight implementation steps, and evaluation results (increased interactions between the child and peers) are outlined. (DB).

****

AN EJ359082.
AU Wood, Karen D.
TI Fostering Cooperative Learning in Middle and Secondary Level Classrooms.
SO Journal of Reading; v31 n1 p10-19 Oct 1987. 87.
LG EN.
IS CIJJAN88.
CH CS734637.
PT 080; 052; 070.
AV UMI.
YR 87.
MJ Cooperation. Group-Activities. Grouping-Instructional-Purposes. Teaching-Methods.
MN Ability-Grouping. Educational-Research. Heterogeneous-Grouping. Homogeneous-Grouping. Middle-Schools. Secondary-Education.
ID IDENTIFIERS: Cooperative Learning. TARGET AUDIENCE: Teachers. Practitioners.
AB Provides a brief overview of the research on cooperative learning, and describes several classroom grouping techniques useful for all grade levels and subject areas. Discusses group retellings, associational dialogue, dyadic learning, needs grouping, the buddy system, cybernetic sessions, and research, interest, ability, tutorial, random social, and team grouping. (SKC).

****

AN EJ348371.
AU Slavin, Robert.
TI Cooperative Learning: Can Students Help Students Learn.
SO Instructor; v96 n7 p74-76,78 Mar 1987. 87.
LG EN.
IS CIJMAY87.
CH SP516519.
PT 080; 055; 070.
YR 87.
MJ Group-Activities. Peer-Teaching.
MN Elementary-Education. Heterogeneous-Grouping. Individualized-Instruction.
ID TARGET AUDIENCE: Teachers. Practitioners.
AB The concept of student team learning is described, with details on cooperative learning techniques developed for reorganizing classrooms into exciting, high-achieving places. (CB).

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Prepared by the ERIC Clearinghouse on Elementary and Early Childhood Education (ERIC/EECE). *ERIC/EECE address and phone number are on the back of this page.

ERIC

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ERIC Clearinghouse on Elementary and Early Childhood Education
College of Education
University of Illinois
805 W. Pennsylvania Ave.
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A. Documents	
1. Documents Evaluated Annually for Possible Addition to ERIC Database	25,000
2. Documents Added to ERIC Database (*Resources in Education* file)	
a. Monthly (Average)	1,040
b. Annually (Current Level)	12,500
c. To Date (1966 through December 1988)	290,038
B. Journal Articles	
1. Journal Titles Covered (i.e. regularly analyzed for education-related articles)	780
2. Journal Articles Added to ERIC Database (*Current Index to Journals in Education* file)	
a. Monthly (Average)	1,400
b. Annually (Current Level)	17,000
c. To Date (1969 through December 1988)	375,771
C. Total Accessions in ERIC Database (1966-1988)	665,809
D. Organizations Contributing Documents to ERIC	
1. Total to Date (1966-1988)	31,000
2. Active Within Last Five Years	12,000
3. Standing Acquisition Arrangements (Organizations Automatically Sending ERIC Their Documents)	1,250

II. Document Delivery

A. Microfiche Production Activity	
1. Titles Microfiched	
a. Monthly (per RIE issue)	1,025
b. Annually	12,250
2. Microfiche Cards per Title (Average)	1.4
3. Microfiche Cards Delivered per Subscriber	
a. Monthly (per RIE issue)	1,435
b. Annually	17,000
B. Sales Activity (from EDRS)	
1. Standing Order Subscriptions for ERIC Microfiche	800
2. Microfiche Cards Sold on Subscription (Annually)	12,700,000
3. On-Demand Document Orders Processed Annually (Microfiche or Paper Copy)	12,000
C. ERIC Microfiche Collections Open to Public Access	
1. Domestic	780
2. Foreign	111
3. Total	891

* Many of the statistics reported here are constantly changing and therefore have been rounded.

III. Publications

A. ERIC Clearinghouse Publications (all types) (1967-1988)	5,203
B. ERIC Digests (Highlights and syntheses of research findings on major topics)	
1. Total ERIC Digests (through 1987)	533
2. ERIC Digests Available Online	320
C. Abstract Journals	
1. Subscriptions to *Resources in Education* (RIE)	2,000
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A. Subscriptions to ERIC Magnetic Tapes	40
B. ERIC Information Service Providers	
1. Offering Access to ERIC Microfiche	891
2. Offering Computer Searches of ERIC Files	500
C. Inquiries/Questions Answered Annually	
1. ERIC Facility	3,000
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A. *Thesaurus of ERIC Descriptors*	
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B. *Identifier Authority List*	
Total Identifiers (as of June 1987)	41,149
C. *Institutional Source Directory* (Complete)	
Organizations/Institutions Contributing Documents to the ERIC Database (as of March 1987)	29,647
D. Other Authority Lists	
a. Languages	168
b. Geographic Locations	217
c. Publication Types	38
d. Government Levels	5
e. Target Audiences	11

** A rapidly increasing number
*** Includes DIALOG, BRS, ORBIT, and Foreign Vendors

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Eugene, Oregon 97403-5207
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